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Occasional Papers on the Kinds of Plants

NEW AND ADOPTED NAMES

1. Discussions in botanical names of cultivated plants
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by

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3. Questionable validity of names published in Gilibert's floras of Lithuania

by Rogers McVaugh

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ARTICLE 1.
DISCUSSIONS IN BOTANICAL NAMES OF CULTIVATED PLANTS.

By G. H. M. Lawrence

This Fascicle of Gentes Herbarum is to acquaint horticulturists with the reasons for recent changes in botanical names of certain cultivated plants, particularly as expressed in the revised Manual of Cultivated Plants, soon to appear.

In 1941 Hortus Second was published by L. H. and E. Z. Bailey to account for the plants then known to be cultivated domestically. Since that time the results of considerable taxonomic research on these and related plants have been published by botanists throughout the world. The revision and rewriting of the enlarged Manual of Cultivated Plants was based in part on a review of much of this literature by members of the staff of the Bailey Hortorium. Although this survey could not be complete, every reasonable effort was made to take cognizance of contemporary taxonomic studies of indigenous or cultivated plant materials. As a result, in the preparation of a manuscript treating about 5,300 kinds of plants of all parts of the world, it was necessary to accept or make some changes in scientific names from those in Hortus Second.

It is most unfortunate that it was necessary to take such steps and some persons would contend that the interests of all would be served best if the replaced names were "frozen" to remain as they were. However, the naming of plants is not an end unto itself. It is one facet, in the composite of all facets, of our scientific understanding of plants—their relationships and kinds. In order that all concerned with the naming of plants may arrive at the same conclusions, uniformities in practice must exist. To this end there is among botanists, by international agreement, a set of rules controlling the procedures and practices dealing with the names and naming of plants. These are the International Rules of Botanical Nomenclature. They are written and published rules available at all centers of taxonomic activity for purpose of study and reference.

It will be noted in many of the examples of name changes that follow that the displaced name has been accepted and become established for many decades. The question may properly be raised as to why it has been necessary to make these changes. Such inquiry presents an obligation, on

the part of those concerned with recognizing and adopting these name changes in Bailey's revised Manual,* to justify their occurrence. That is to say, there is an obligation to workers who are not trained in taxonomic procedure but are vitally concerned with the scientific names of these plants to explain as simply as possible the reasons underlying each particular case so that cause for the change may be understood. It is to be hoped that an understanding of the scientific reasons in each case will help the seedsmen, plantsmen, and growers of plants to recognize that the ultimate goal of stability in nomenclature is being approached.

In the nomenclatorial case-histories that follow, the names of about 120 plants have been changed—a small percentage of the several thousand treated in the entire work. Of these 120, about a third are changed as a result of the displacement of the existing name by another and earlier name for the same plant. This is the result of the "law of priority" which requires acceptance of the oldest legitimate binary name for each species (that is, the specific name, such as *officinalis*, which is a binary name or epithet of the binomial *Calendula officinalis*), irrespective with what later generic name it may have been used (see under Pyrrosia, page 5). In addition, nearly one-fourth of the name changes are the result of the so-called "homonym rule" (Article 61 of the Rules). This Article, incorporated into the Rules at the Cambridge Congress of 1930, requires that a name be considered illegitimate and be rejected if previously the same name has been published properly and used for another plant; an example of this type of name change is explained under *Abies procera* (page 9). Misidentification on the part of some early botanist is a cause for about a fifth of the name changes; for examples, see the discussions of *Aloe vera*, *Yucca filamentosa* or *Heliconia Bihai*. These three basic reasons are strictly matters of nomenclature. Collectively they account for nearly 85 per cent of the changes. In other cases, changes in name have been caused by revision of opinion of relationships between plants. In some instances two separate species are now considered only a single species (as in the case of *Dimorphotheca sinuata*, page 73). In other cases a genus has been subdivided and the species are now treated as belonging to two or more genera (see under Brodiæa, page 18). Some generic names have been conserved by arbitrary legislation and all other generic names used for the same plants rejected; for discussion of this type of change see Æschynanthes (page 67).

The taxonomic bases for most of the cases that follow are already in the botanical literature. They are repeated here with more copious explanation in order that they may be more readily available to botanists and more comprehensible to horticulturists concerned with identification of cultivated plants. In most cases my attention has been directed to them by

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members of the Hortorium staff who have prepared the respective treatments in the revised Manual and, while credit has not been given in individual cases, it is here acknowledged freely to L. H. Bailey, E. Z. Bailey, P. A. Munz, H. E. Moore Jr., and M. L. Hall. In addition, considerable help came from W. T. Stearn of the Royal Horticultural Society's Lindley Library, London, and to whom I am deeply grateful.

POLYPODIACEÆ

The treatment of this very large family of ferns, Polypodiaceæ, in the forthcoming revised Manual is conservative as the family is retained in its broad sense and not subdivided into the eight or nine families recognized by Copeland (Gen. Filicum, 1947) nor the more than thirty families recognized recently by Ching (Sunyatsenia, v, 257, 1940). On the other hand, study of Copeland's work indicated clearly that it was necessary for nomenclatorial reasons or desirable on taxonomic grounds to accept changes in the generic names of a very few of our cultivated fern genera. In arriving at these conclusions, the valued counsel of C. A. Weatherby of the Gray Herbarium was sought and accepted. A discussion of these changes of fern names follows.

Pyrrosia, Mirbel, Hist. Nat. Veg. v, 91 (1803).
Candollea, Mirbel, op. cit. 86, not Labill. (1805).
Cyclophorus, Desv. in Berl. Mag. v, 300 (1811).
Niphobolus, Kaulf. Enum. 124 (1824).

Following Copeland (Gen. Filicum, 192–194, 1947), the generic name Pyrrosia is used for the genus treated as Cyclophorus in Hortus Second and Bailey's Standard Cyclopedia of Horticulture. The one cultivated species is *Pyrrosia Lingua*, (Thunb.) Farwell, based on *Cyclophorus Lingua*, Thunb.) Desv. The late Carl Christensen, eminent pteridologist, restored the name Cyclophorus to the group, but on the basis of priority Pyrrosia must be adopted as the earliest and valid name for the genus.

Sphenomeris, Maxon, in Journ. Wash. Acad. Sci. iii, 144 (1913).
Stenoloma, Farwell, in Amer. Midland Nat. xii, 237 (1931), not Fée (1850–52).

The genus Odontosoria, Fée, is wholly tropical American in distribution and none of its species is known to be cultivated. It differs from the predominately Old World genus Sphenomeris in its fronds being of indefinite growth and very rampant habit; in Sphenomeris the fronds are erect and of limited growth. The cultivated fern now removed from Odontosoria (*O. chinensis*) has the name *Sphenomeris chusana*, (L.) Copeland.

Polystichum setiferum, (Forsk.) Woynar in Mitt. Natur. Ver. Steierm. xlix, 181 (1913).

Polystichum aculeatum, Auth. not Roth.

Polystichum angulare, (Kit.) Presl, Tentamen Pteridographiæ, 83 (1836).

One of the common cultivated ferns, represented by innumerable clonal horticultural variants, is grown under the name *Polystichum aculeatum.* It was shown by Alston in a relatively recent botanical study (Journ. Bot. lxxviii, 160–164, 1940) that *Polystichum aculeatum,* (L.) Roth, is not the species generally known by that name but is identical with the plant commonly treated as *P. lobatum,* Huds. The latter, being the more recent name of the two, becomes a synonym of *P. aculeatum,* (L.) Roth not Auth. Further study revealed that the plant commonly known to botanists and horticulturists as *P. aculeatum* was actually *Polystichum setiferum,* (Forsk.) Woynar and that the better known name of *P. angulare* was a synonym of it.

Pteris multifida, Poir. ex Lam. Encyc. Bot. v, 714 (1814).

Pteris serrulata, L. f. Suppl. 445 (1781), not Forsk. (1775).

Pycnodoria multifida, (Poir.) Small, Ferns of the Southeast, 104 (1938).

This long cultivated species of Pteris has escaped from cultivation and become naturalized throughout tropical and subtropical areas of the earth to the extent that its original indigenous source can only be presumed to be China. The name *Pteris serrulata,* by which it is well known, is a later homonym and must be rejected in favor of the next oldest name of *P. multifida.* This situation was recognized by Christensen as early as 1906 (Ind. Filicum, 607) but since the earlier *P. serrulata* of Forskal was itself of questionable identity, Christensen's views were not accepted by many American botanists until legislation of the homonym rule (Article 61) in 1935. This change in name was not accounted in the text of the revised Manual but was noted on page 1097 in a footnote to the index.

Generic relationships among cultivated Polypodys

The conventional genus Polypodium has been considered by most fern authorities an unnatural genus and, following Copeland and Ching, it seems advisable to recognize three genera, instead of the single genus Polypodium. Additional generic segregates are to be anticipated as more species are treated.

The common Polypody remains in Polypodium. Its binomial is *Polypodium vulgare,* L.

The Hares-foot or Golden Polypody (*P. aureum*) becomes *Phlebodium aureum*, (L.) Smith, and the East Indian Polypody (*P. Phymatodes*) becomes *Phymatodes Scolopendrium*, (Burm.) Ching (not treated in the revised Manual, as only occasionally in cultivation).

The three genera are differentiated largely on the basis of frond venation: the vein-branches free from one another and neither anastomosing nor netted in Polypodium; the veins netted, with minute veinlets or with free vein-tips within each areole or mesh of the network in Phlebodium and Phymatodes. The latter two genera are separated from each other by characters of the included veinlets of each mesh: simple in Phymatodes, and variously directed or branched in Phlebodium.

SELAGINELLACEÆ

Selaginella pallescens, (Presl) Spring, in Mart. Fl. Bras. i (2), 132 (1840).

Lycopodium pallescens, Presl, Reliq. Haenk. i, 79 (1825).

Lycopodium cuspidatum, Link, Hort. Berol. ii, 161 no. 8 (1833).

Selaginella cuspidata, (Link) Link f. Spec. 158, no. 2 (1841).

Selaginella Emmeliana, Van Geert, in Rev. Hort. Belg. x, 220 (1884).

Selaginella cuspidata var. *Emiliana*, Van Houtte ex G. Schneid. Choice Ferns, iii, 416 (1894).

A favorite Selaginella in conservatory collections is an erect much-branched species well known here by the name *Selaginella Emmeliana*. The same plant is also cultivated and known botanically as *S. cuspidata*. In 1932 Alston (Journ. Bot. lxxi, 241) following Spring (1840) treated the basonym of the latter species as synonymous with *S. pallescens*, a situation overlooked when the genus was recounted in Hortus Second. Subsequently, in correspondence to the late W. R. Maxon, Alston provided the synonymy cited above and stated concerning this plant; ". . . . *pallescens* is the earliest name. *S. Emmeliana* is just a gardener's name for the same species. The garden plant looks rather different from most wild specimens owing to the regular water supply which it commonly receives."

CEPHALOTAXACEÆ

The Japanese Plum-Yew is known to most authors and plantsmen as *Cephalotaxus drupacea*. It was so named by Siebold and Zuccarini in 1846. According to Wilson (Conifers and Taxads of Japan, page 6) it is native to northern Japan where typically it is a shrub 4–8 feet high but occasionally a bushy tree to 30 feet. This Japanese plant, however, is not the element

most commonly cultivated in this country although grown in Europe where it was introduced by Siebold in 1830.

The most commonly grown element of this species is one first known to science as *Taxus Harringtonia*, a plant grown in the pinetum of the Duke of Bedford, at Woburn (England), in the early 1830's and named and described under this binomial by Joseph Knight in Forbes' Pinetum Woburnense in 1839. Wilson reported its first introduction to Europe was by Siebold in 1829. The plant is not known in the wild and is of horticultural origin. It has even been suggested by Henry (1912) that it may be a hybrid between *C. drupacea* and *C. Fortunii*. Siebold and Zuccarini named it *C. pedunculata* (1846) and later Miquel, recognizing it to be conspecific with *C. drupacea*, treated it as *C. drupacea* var. *pedunculata* (1867). Botanists and horticulturists have since so recognized these two entities. However, as pointed out by Rehder (Journ. Arnold Arb. xxii, 569–571, 1941), and in 1930 by Koidzumi, when two entities are combined as elements of a single binomial it is required by the Rules that the oldest available legitimate binary name be employed. In this case, it is *Cephalotaxus Harringtonia* (based on *Taxus Harrintgonia*), and since this binomial has been applied to the plant usually treated as a variety, that variant then becomes nomenclatorially the typical element and what was treated as the typical element (*C. drupacea*) becomes a variant of it. It is regrettable that this reversal of names must be made, the more so since the now-typical element is known only in cultivation; but nonetheless the oldest specific epithet must be accepted. For these reasons, the name of the Japanese Plum-Yew becomes *Cephalotaxus Harringtonia* var. *drupacea*. The essential synonymy of the two elements concerned follows:

Cephalotaxus Harringtonia, (Knight ex Forbes) Koch, Dendrol. ii (II), 102 (1873).

Taxus Harringtonia, Knight ex Forbes, Pinetum Woburnense, 217, t. 66 (1839).

Cephalotaxus pedunculata, Sieb. & Zucc. in Abh. Akad. Muench. iv (III), 234 (1846).

Cephalotaxus drupacea var. *pedunculata*, (Sieb. & Zucc.) Miq. in Ann. Mus. Bot. Lugd.-Bat. iii, 169 (1867).

Cephalotaxus Harringtonia var. **drupacea,** (Sieb. & Zucc.) Koidz. in Bot. Mag. Tokyo, xliv, 98 (1930).

Cephalotaxus drupacea, Sieb. & Zucc. op. cit. 232.

PINACEÆ

Abies procera, Rehd. in Rhodora, xlii, 522 (1940).

Pinus nobilis, Dougl. ex D. Don, in Lamb. Descr. Gen. Pinus, Ed. 2, ii, t. 81 (1832).

Abies nobilis, Lindl. in Penny Cyclo. i, 30 (1833), not Dietr. (1823).

As pointed out by Rehder (l.c.), the western Noble Fir has long been known as *Abies nobilis,* a name determined by him to be a later homonym since the binomial had been employed earlier by Dietrich for the Silver Fir (*Abies alba*). Because later homonyms are invalidated by Article 61 of the Rules, the Noble Fir becomes *Abies procera.*

Pinus australis, Michx. f. Hist. Arb. Amer. i, 64, pl. 6 (1810).

Pinus palustris, Mill. Gard. Dict. Ed. 8, no. 14 (1768).

The above names concern the Longleaf Pine, a tree of southeastern United States long known as *Pinus palustris* but now treated as *P. australis.* This change of name was not made in the text of the revised Manual but was accounted for in a footnote on page 1093 of the index to that work. Basis for the change is in the paper by Fernald and Schubert (Rhodora, l, 181–186, 1948) and that by Fernald (op. cit. 241–249), a result of critical studies of material in the Miller herbarium by Dr. Schubert at the British Museum. No specimen of the species was found there, but from circumstantial evidence and on the basis of Miller's accounts and material believed to have been available to him (and annotated "*Pinus palustris* Swamp Pine" in an almost illegible hand that compared favorably with Miller's), it was contended that Miller's *P. palustris* was actually *Pinus Taeda* and not the Longleaf Pine. The latter was adequately described, well illustrated, and named *P. australis* by François Michaux in 1810. A view contrary to that held by Fernald, and in support of retention of the name *P. palustris* was presented by Little (Phytologia, ii, 457–458, 1948). However, the clarity of the refutation by Fernald leaves little question as to the nomenclatorial validity of *P. australis* for the Longleaf Pine.

CUPRESSACEÆ

Cupressus Duclouxiana, Hickel, in A. Camus, Cyprès, 91 (1914).

Cupressus torulosa, Rehd. & Wils. Pl. Wils. ii, 54 (1915), not D. Don, Prodr. Fl. Nepal. (1825).

The above synonymy concerns one species of Cypress grown to a limited extent on the west coast as *Cupressus torulosa,* but this name is a later homonym and Hickel's *Cupressus Duclouxiana* should be taken up in its place.

Juniperus Deppeana, Steud. Nom. Bot. Ed. 2, i, 835 (1840).

Juniperus mexicana, Schiede & Deppe, ex Schlecht. & Cham. in Linnaea, v, 77 (1830), not Spreng. (1826).

As pointed out recently by numerous authors (including Morton, 1941, Martinez, 1946, Little, 1948), the earliest legitimate name for the Mexican or Alligator Juniper is *J. Deppeana,* which replaces *J. mexicana,* Schiede & Deppe, since the latter is a later homonym. The earlier *J. mexicana,* Spreng., was treated by Martinez as a synonym with the earlier *J. sabinoides,* HBK., which in turn is a synonym of *J. monticola* forma *compacta.*

PALMACEÆ

Phœnix Loureiri, Kunth, Enum. Pl. iii, 257 (1841).

Phœnix pusilla, Lour. Fl. Cochinch. 640 (1790) not Gaertn. (1788).

Phœnix Roebelenii, O'Brien, in Gard. Chron. ser. 3, vi, 475, 758 (1889).

Phœnix humilis, Royle, var. *Loureiri,* Becc. in Malesia, iii, 348, 379, 382 (1890).

This dwarf fine-leaved palm, grown extensively in the open in the South for landscape effects and as a pot or tub subject under glass in colder regions, has a clouded botanical background and has been subjected in the past to various taxonomic treatments. By Beccari and by Chevalier, *P. Roebelenii* was kept distinct from *P. Loureiri;* more recent studies treat the two as conspecific (see Blatter, Palms of British India and Ceylon, 20, 1926).

Conservation of Pritchardia (by L. H. Bailey)

In the Proposed Amendments to the International Rules of Botanical Nomenclature sponsored by The American Society of Plant Taxonomists it is recommended that the generic name Pritchardia for the Pacific island palm be conserved over Eupritchardia. This recommendation has been duly affirmed by all the interests involved, and I adopt it.

Publication of Pritchardia, Seem. & Wendl., is by Hermann Wendland in Bonplandia, x, 197 in 1862. Finding that Unger in 1842 had published a paleobotanical genus Pritchardia (Endl. Gen. Suppl. ii, 102), Kuntze in 1898 proposed the generic name Eupritchardia for the Pacific palm (Rev. Gen. Pl. iii, 323). Drude had noted the duplication of names and in 1897, before the International Rules had established the practice of priority, had proposed the name Pritchardioxylon for the fossil. Other species of the Pacific Pritchardia have now been described, but have not been transferred to Eupritchardia. Pritchardias are planted widely in the tropics and

an attempt to give them another name would be almost hopeless; in fact, Pritchardia has become a vernacular.

LILIACEÆ

Aloe barbadensis, Mill. Gard. Dict. Ed. 8, no. 2 (1768).

Aloe perfoliata, L. [var.] π *vera*, L. Sp. Pl. 320–321 (1753).

Aloe vera, Auth. not Mill. (1768).

For nearly two centuries most authors have confused the plant commonly known as *Aloe vera* with one so named and described by Philip Miller in the eighth edition of his Gardener's Dictionary. The two kinds are not the same, for Miller's *A. vera* is quite different from the *A. perfoliata vera* of Linnæus, a difference probably not recognized by Miller. The plant long cultivated and distributed as *Aloe vera* is that described by Miller as *A. barbadensis*. As pointed out by Hill (Bot. Mus. Leaflets Harvard Univ. x, 142, 1942), *A. barbadensis* is the correct name for the plant commonly known and grown as *A. vera*.

Chlorophytum capense, (L.) Kuntze, Rev. Gen. Pl. iii, 316 (1898).

Asphodelus capensis, L. Syst. Ed. 10, 982 (1759).

Anthericum Rouwenortii, De Gorter, Cat. Pl. Hort. Ulempass, 51, t. 1 (1783).

Anthericum elatum, Ait. Hort. Kew. i, 448 (1789).

Chlorophytum elatum, R. Br. ex Spreng. Syst. ii, 88 (1835).

The correct name of the Bracket-Plant, commonly grown in windows in temperate regions and as a foliage subject in the tropics, has been worked out recently by Van Oostroom (Blumea, iv, 493–495, 1941). From Van Oostroom's lucid account it is shown that both Linnæus (1759) and Aiton (1789) supplemented their diagnoses by reference to the same plate (number 56) of Miller's Icones, hence the earlier Linnæan name of *Asphodelus capensis* has priority and the resultant combination of *Chlorophytum capense* by Otto Kuntze is valid for the plant.

Hosta glauca, (Sieb.) Stearn, in Gard. Chron. ser. 3, xci, 27 (1931).

Hemerocallis Sieboldtiana, Lodd. Bot. Cab. t. 1869 (1832), *nomen nudum*.

Funkia Sieboldiana, Auth. not Hook. (1839).

Funkia Sieboldiana var. *condensata*, Miq. Prol. Fl. Japon. 317 (1866), ex Ann. Mus. Bot. Lugd.-Bat. iii, 153 (1866).

Funkia glauca, Sieb. ex Miq. in Archiv. Neerland. Sci. Exact. et Nat. iv, 228 (1869).

Hosta Sieboldiana, Aschers. & Graebn. Synop. Mitteleurop. Fl. iii, 55 (1904) excl. var. and syn., not Engler (1880).
Niobe Sieboldiana, Nash, in Torreya, xi, 6 (1911).

The robust Short-cluster Plantain-Lily has long been known in horticultural and botanical literature and by plantsmen as *Hosta Sieboldiana*. Its identity and nomenclature were resolved by W. T. Stearn (Gard. Chron. xc, 27, 48–49, 89, 110, 1931). As pointed out by Stearn and cited in the above synonymy, only the binary epithet was first published for the plant by Loddiges in 1832 as *Hemerocallis Sieboldtiana*, the publication consisting only of a colored plate representing a flowering plant. No floral dissections nor any description of the plant were included. Because these details were omitted, the binomial is a *nomen nudum*, for functionally a naked name is illegitimate. The epithet itself was taken up in 1838 by Hooker (Bot. Mag. t. 3663), who did not use it for Loddiges' plant, but rather for a different species not now known to be cultivated. The first legitimately published name for the plant was *Funkia glauca*. In this case Miquel, who published the binomial, adopted a manuscript name of Von Siebold's. The generic name for the Plantain-Lilies is Hosta, conserved over all other names. The oldest legitimate specific epithet for the plant is *glauca* and when used in combination with Hosta the valid name becomes *Hosta glauca*.

Hosta ventricosa, (Salisb.) Stearn, in Gard. Chron. ser. 3, xc, 27 (1931).
Hemerocallis cærulea, Andr. Bot. Rep. i, t. 6 (1797).
Bryocles ventricosa, Salisb. in Trans. Hort. Soc. Lond. i, 335 (1812).
Hosta cærulea, Tratt. in Archiv. Gewächsk. ii, 144, no. 189 (1814), not Jacq. (1797).

The Blue Plantain-Lily, known as *Hosta cærulea*, must relinquish the illegitimate epithet of *cærulea* for the next oldest legitimate one of *ventricosa*. This latter epithet was first used for the plant by the English botanist Richard Salisbury when he named it *Bryocles ventricosa*. The generic name Bryocles is not accepted inasmuch as botanists have legislated that Hosta, because of its widespread use for this genus, shall be conserved over all other generic names for the group. The illegitimacy of the name *Hosta cærulea* was established by W. T. Stearn (l.c.) and the new combination of *Hosta ventricosa* made by him.

Polygonatum pubescens, (Willd.) Pursh, Fl. Amer. Sept. i, 234 (1814).
Convallaria pubescens, Willd. Hort. Berol. i, 45, pl. 45 (1806).
Polygonatum biflorum, Gray Man. Ed. 2, 466 (1856) and Auth. not Ell. (1817).

The student desiring complete synonymy for this Solomons-Seal is re-

ferred to Ownbey's revision of the North American species of the genus (Ann. Mo. Bot. Gard. xxxii, 373–413, 1944) and for an analysis of the situation with regard to *P. biflorum*, (Walt.) Ell., to Fernald's paper presenting specific distinctions between *P. biflorum* and *P. canaliculatum* (Rhodora, xlvi, 9–11, 1944). It is sufficient to point out that the plant described in Gray's Manual (Ed. 7) as *P. biflorum* is now identified as *P. pubescens* and the latter name is not a synonym of *P. biflorum* as indicated in many botanical and horticultural works. The two species (*P. biflorum* and *P. pubescens*) may be differentiated as follows:

Lowest leaf a papery bract, deciduous, leaving a ring-like scar on the stem; leaves minutely hairy beneath on the veins. . *P. pubescens*
Lowest leaf persistent, green; leaves not hairy beneath. . . . *P. biflorum*

Tulipa Clusiana, DC., var. **chrysantha,** (Boiss.) Sealy, in Bot. Mag. n. ser. clxv, t. 13 (1948).

Tulipa stellata, Hook., var. *chrysantha*, A. D. Hall, Genus Tulipa, 22, 43, 85, t. 16 (1940); Journ. Roy. Hort. Soc. lxvii, 242–243 (1942).

Tulipa chrysantha, (Boiss.) Boiss. ex Baker, in Journ. Linn. Soc. Lond. Bot. xiv, 279 (1894), not Boiss.

This tulip, whose correct name and partial synonymy is given above, is commonly known in cultivation as *T. stellata* var. *chrysantha*. Its identity and relationships were published recently by J. R. Sealy (l.c.) together with copious notes on this and related species. Sealy also considered *T. stellata*, Hook., to be *T. Clusiana* var. *stellata*, (Hook.) Regel.

Tulipa tarda, Stapf, in Bot. Mag. t. 9321 (1933).

Tulipa dasystemon, Hort. and Auth. not Regel, in Act. Hort. Petrop. vi, 507 (1879), nor B. Fedtsch. in Engler Bot. Jahrb. l, Suppl. 617 (1914).

One of the commonly cultivated so-called "botanical tulips" is the species distributed and grown as *Tulipa dasystemon*. The botanical status of this garden tulip was first determined and clearly explained by the late Otto Stapf of Kew.

The species *Tulipa dasystemon* was first collected in Turkestan in 1877 by Albert Regel and described as new two years later by his father, the renowned Eduard von Regel. The flower of this species is yellow within and has a pistil whose style is filiform and stigma obscurely lobed. The plant now cultivated as *T. dasystemon* is believed to have been introduced to gardens about forty years ago and is not known to have been collected in the wild, although evidence exists that suggests Turkestan to be its place of nativity. It differs from Regel's *T. dasystemon* by a number of characters,

Hosta Sieboldiana, Aschers. & Graebn. Synop. Mitteleurop. Fl. iii, 55 (1904) excl. var. and syn., not Engler (1880).
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Bryocles ventricosa, Salisb. in Trans. Hort. Soc. Lond. i, 335 (1812).
Hosta cærulea, Tratt. in Archiv. Gewächsk. ii, 144, no. 189 (1814), not Jacq. (1797).

The Blue Plantain-Lily, known as *Hosta cærulea*, must relinquish the illegitimate epithet of *cærulea* for the next oldest legitimate one of *ventricosa*. This latter epithet was first used for the plant by the English botanist Richard Salisbury when he named it *Bryocles ventricosa*. The generic name Bryocles is not accepted inasmuch as botanists have legislated that Hosta, because of its widespread use for this genus, shall be conserved over all other generic names for the group. The illegitimacy of the name *Hosta cærulea* was established by W. T. Stearn (l.c.) and the new combination of *Hosta ventricosa* made by him.

Polygonatum pubescens, (Willd.) Pursh, Fl. Amer. Sept. i, 234 (1814).
Convallaria pubescens, Willd. Hort. Berol. i, 45, pl. 45 (1806).
Polygonatum biflorum, Gray Man. Ed. 2, 466 (1856) and Auth. not Ell. (1817).

The student desiring complete synonymy for this Solomons-Seal is re-

ferred to Ownbey's revision of the North American species of the genus (Ann. Mo. Bot. Gard. xxxii, 373–413, 1944) and for an analysis of the situation with regard to *P. biflorum*, (Walt.) Ell., to Fernald's paper presenting specific distinctions between *P. biflorum* and *P. canaliculatum* (Rhodora, xlvi, 9–11, 1944). It is sufficient to point out that the plant described in Gray's Manual (Ed. 7) as *P. biflorum* is now identified as *P. pubescens* and the latter name is not a synonym of *P. biflorum* as indicated in many botanical and horticultural works. The two species (*P. biflorum* and *P. pubescens*) may be differentiated as follows:

Lowest leaf a papery bract, deciduous, leaving a ring-like scar on the stem; leaves minutely hairy beneath on the veins. . *P. pubescens*
Lowest leaf persistent, green; leaves not hairy beneath. . . . *P. biflorum*

Tulipa Clusiana, DC., var. **chrysantha,** (Boiss.) Sealy, in Bot. Mag. n. ser. clxv, t. 13 (1948).

Tulipa stellata, Hook., var. *chrysantha*, A. D. Hall, Genus Tulipa, 22, 43, 85, t. 16 (1940); Journ. Roy. Hort. Soc. lxvii, 242–243 (1942).

Tulipa chrysantha, (Boiss.) Boiss. ex Baker, in Journ. Linn. Soc. Lond. Bot. xiv, 279 (1894), not Boiss.

This tulip, whose correct name and partial synonymy is given above, is commonly known in cultivation as *T. stellata* var. *chrysantha*. Its identity and relationships were published recently by J. R. Sealy (l.c.) together with copious notes on this and related species. Sealy also considered *T. stellata*, Hook., to be *T. Clusiana* var. *stellata*, (Hook.) Regel.

Tulipa tarda, Stapf, in Bot. Mag. t. 9321 (1933).

Tulipa dasystemon, Hort. and Auth. not Regel, in Act. Hort. Petrop. vi, 507 (1879), nor B. Fedtsch. in Engler Bot. Jahrb. l, Suppl. 617 (1914).

One of the commonly cultivated so-called "botanical tulips" is the species distributed and grown as *Tulipa dasystemon*. The botanical status of this garden tulip was first determined and clearly explained by the late Otto Stapf of Kew.

The species *Tulipa dasystemon* was first collected in Turkestan in 1877 by Albert Regel and described as new two years later by his father, the renowned Eduard von Regel. The flower of this species is yellow within and has a pistil whose style is filiform and stigma obscurely lobed. The plant now cultivated as *T. dasystemon* is believed to have been introduced to gardens about forty years ago and is not known to have been collected in the wild, although evidence exists that suggests Turkestan to be its place of nativity. It differs from Regel's *T. dasystemon* by a number of characters,

notably in the pistil having no sharply demarked style and stigma minutely but distinctly 3-lobed. In addition, there is a color difference for the flowers of the cultivated plant, instead of being uniformly yellow within, have all perianth-segments yellow within but with the inner margins and apices white.

For these and other more technical reasons, Stapf concluded the garden plant to be a distinct species quite different from other known members of the genus. Since it had been known as *T. dasystemon* but was not that species, it was a plant without a name. To correct this anomaly Stapf published for it the new name of *Tulipa tarda*, the specific epithet being in allusion to its late flowering.

Yucca Smalliana, Fern. in Rhodora, xlvi, 5–9 (1944).
•*Yucca filamentosa*, Auth. not L. (1753).

In his relatively recent study of the Yuccas of southwestern Virginia, Fernald concluded that the plant native of the Carolinas, Georgia, and Florida westward to the Mississippi, and long known as *Yucca filamentosa*, was not the one so-named by Linnæus in 1753. On the other hand, he considered the plant of Virginia and North Carolina, known locally as Silk-Grass and as *Y. concava*, to be Linnæus' *Y. filamentosa*. This situation resulted in the more southern plant being deprived of its name (*Y. filamentosa* of authors). As there was no other binomial to serve as a replacement Fernald gave it the new name of *Yucca Smalliana*, honoring the late Dr. J. K. Small.

Names of certain lilies (Lilium)

A hybrid of *Lilium regale* and *L. Sargentiæ* has been cultivated for several decades as *Lilium princeps*. It was so named by E. H. Wilson in 1925. The nomenclatorial situation has been studied by W. T. Stearn of the Royal Horticultural Society's Lindley Library who kindly sent me advance proof of his article on the subject as published in Gardener's Chronicle (ser. 3, cxxiv, 12, 1948). This hybrid arose as a chance seedling and was first named *Lilium imperiale* by Wilson in 1920 (Gard. Chron. ser. 3, lxvii, 255, fig. 118). Later Wilson learned of the illegitimate name *L. imperiale*, Spae (1847), and believing it to be legitimate and having precedence of date, abandoned his own use of the name, substituting for it the now well-known name *L. princeps*. In accounting for the plant, Stearn has demonstrated that the name *Lilium imperiale*, Wils., must be reinstated for the hybrid.

Lilium elegans is a name familiar to the most amateur plant-lovers and the plant with its open erect reddish-orange flowers is common to many gardens. In his detailed studies of the taxonomy and nomenclature of this

group of lilies, Stearn (l.c.) found that while Thunberg published the name *L. elegans* in 1811, he had published previously in 1794 the name *L. maculatum* for the same plant. Later (1829) Schultes named it *L. Thunbergianum*, but, as Stearn has stated, "the name *L. maculatum* thus has priority over both and is accordingly the correct title for this group of showy plants . . . now commonly regarded as hybrids derived from *L. concolor* × *L. dauricum*."

A third lily binomial to fall is *Lilium umbellatum*. As used for the garden lily it is a Hort. name, that is, one not based on a regular botanical description but well established and clearly identifiable through long usage with a cultivated subject. However, the name *L. umbellatum* was employed by Frederick Pursh in 1814 (Fl. Amer. Sept. 229) for a very different species. This finding left the garden plant without a valid name, a situation remedied by Bergmans who in 1939 proposed and legitimately published for it the name *Lilium hollandicum* (Vaste Planten en Rotsheesters, Ed. 2, 476). I am indebted to W. T. Stearn for bringing to my attention the unavailability of the name *L. umbellatum* and of Bergman's name and citation.

Lilium Humboldtii var. *magnificum* is a taller, more floriferous, larger-spotted variant of *L. Humboldtii* and was so named by Carl Purdy in 1897. However, I am informed by Stearn that the same variant was named var. *ocellatum* by Elwes in 1877. Because of its priority the latter must be accepted, and the valid name for the variety is *L. Humboldtii* var. *ocellatum*, Elwes.

Lilium Willmottiæ, Wils., is not accepted by Stearn as a distinct species and accordingly is treated as a variant of *L. Davidii*, Duchartre. By this interpretation the new name is *L. Davidii* var. *Willmottiæ*, (Wils.) Raffill.

AMARYLLIDACEÆ

For a century and a half and more, botanists have separated plants of the Amaryllis family from those of the Lily family largely by the position of the ovary within the flower: inferior in the former and superior in the latter. John Hutchinson (Families of Flowering Plants, ii, 129 *et seq.*, 1934) discarded this criterion, with the contention that it united many genera that were not very closely related. Furthermore, there are numerous genera in these two families whose flowers have ovaries intermediate between the position of inferior and superior. Hutchinson proposed to separate the families on the basis of inflorescence characters as follows:

Inflorescence an umbel subtended by an involucre of one or more usually papery bracts or spathes (inflorescence sometimes reduced to a single flower, but bracts or spathe present). . . . *Amaryllidaceæ*

Inflorescence various but rarely an umbel (flowers solitary or umbellate) not subtended by bracts or spathe. . . . . *Liliaceæ*

The opinions of several leading botanists, morphologists, and phylogenists have been consulted and the concensus is in support of Hutchinson's contentions. Accordingly, in the revised Manual the two families are separated by the characters given above. This has resulted in a realignment of a few genera, some of those previously considered to belong in the Lily family being now placed in the Amaryllis family. Genera so transferred include: Agapanthus, Allium, Bessera, Brodiæa, Dichelostemma, Ipheion, Leucocoryne, Milla, Triteleia.

Ixiolirion tataricum, (Pall.) Herb. in Append. Bot. Reg. 37 (1821).
Amaryllis tatarica, Pall. Reise, iii (II), 727, and t. D, 726 (1776).
Amaryllis montana, Labill. Icon. Pl. Syr. Dec. ii, 5, t. 1 (1791).
Ixiolirion montanum, Herb. l. c.
Ixiolirion Ledebourii, Fisch. & Mey. in Bong. & Mey. Suppl. Fl. Alt. 293 (1841).
Ixiolirion Pallasii, Fisch. & Mey. ex Ledeb. Fl. Ross. iv, 116 (1853).

This plant, sometimes known as the Siberian- or Tartar-Lily, has been in cultivation as *I. montanum* for many decades. However, it was shown by Traub (Herbertia, ix, 54–58, 1942) that inasmuch as Pallas' legitimately published name of *Amaryllis tatarica* has fifteen years priority over La Billardière's *A. montana*, and no one in recent times has seriously challenged the conspecificity of the two entities, the binary epithet of *tatarica* must be retained on transfer of the plant from Amaryllis to Ixiolirion. The valid name for the plant is *Ixiolirion tataricum*.

Zephyranthes grandiflora, Lindl. in Bot. Reg. xi, t. 902 (1825).
Zephyranthes rosea, Hort. not Lindl. (1824).
Zephyranthes carinata, Herb. in Bot. Mag. t. 2594 (1825).

As pointed out by Hume (Herbertia, vi, 128–129, 1939), the Cuban *Zephyranthes rosea* is difficult to obtain through the usual domestic trade channels since most of the cultivated material so named is actually Lindley's *Z. grandiflora* of Mexico. Both are accepted species and, while the latter is more common in cultivation, plants of *Z. rosea*, Lindl., are in collections of specialists. Leaves and scapes of the latter species show none of the basal purpling conspicuous in *Z. grandiflora* and, unlike the latter, the style and stigmas are tinted pink.

Crinum bulbispermum, (Burm.) Milne-Redhead & Schweickerdt, in Journ. Linn. Soc. Lond. Bot. lii, 161 (1939).
Amaryllis bulbisperma, Burm. Prodr. Fl. Cap. 9 (1768).
Crinum longifolium, Thunb. Prodr. Pl. Cap. 59 (1794), not *Amaryllis longifolia*, L. (1753).
Crinum capense, Auth. not Herb. (1837).

The plant known in the trade and most of the literature as *Crinum longifolium* is one of the most commonly cultivated species of the genus. As pointed out by Milne-Redhead and Schweickerdt, botanists and horticulturists had long assumed that this Crinum was based on Linnæus' *Amaryllis longifolia*—a plant now considered to be *Cybistetes longifolia*, (L.) Milne-Redhead & Schweickerdt, and not known to be cultivated in North America.

The removal of the Linnæan plant and its name to another genus quite different from Crinum requires that the next oldest legitimate name be taken up. That is Burman's *Amaryllis bulbisperma* and by its transfer to the genus Crinum the valid name for this well-known half-hardy Cape plant becomes *Crinum bulbispermum*.

The Hippeastrum-Amaryllis situation

Linnæus in his Species Plantarum (1753), a two-volume work that is the starting point for the nomenclature of flowering plants and in which he named, classified, and briefly described every kind of plant known to him, accounted for nine species of Amaryllis: one from South Africa, the others from America. As time passed other botanists described additional American species and many of them became favorite subjects for the gardens and stove houses of Europe.

The Reverend Dean of Manchester (England), William Herbert, in 1821 divided the genus in two, separating on good morphological grounds the one South African species from those introduced from the American tropics and subtropics. The South African species he retained in the genus Amaryllis, applying to it Linnæus' name of *A. Belladonna*, and for the American kinds he established the genus Hippeastrum. In doing this, he made an error not corrected until the publication of the thorough study of the group by Uphof in 1938 (Herbertia, v, 101–109). As Uphof has demonstrated, Herbert's error lay in application of the name *Amaryllis Belladonna* to the South African plant, whereas this name was used originally by Linnæus for a very different plant, native not in the Cape of Good Hope but in the islands of the Caribbean and adjoining Surinam.

In correcting Herbert's error, then over a century old, Uphof returned the name *Amaryllis Belladonna* to the West Indian plant (long known as *Hippeastrum equestre* or as *H. puniceum*) on which Linnæus originally bestowed it and assigned the South African plant to another genus (now treated as *Brunsvigia rosea*). This he was obliged to do in conformance with the Rules. Furthermore, the Rules of Nomenclature are explicit in directing that when a genus is divided into two or more genera (as was done to Amaryllis by Herbert) the original generic name (in this case Amaryllis) must be retained for one of the segregates. Botanists are agreed

that all of the American members of this group belong to a single genus. Since it was evident that the Linnæan *Amaryllis Belladonna* must, on grounds of being the oldest legitimate name, be applied to the West Indian species, then all of the other American species, being of the same genus, must likewise be returned to Amaryllis. Since the South African species is a Brunsvigia and all American species belong to Amaryllis, Hippeastrum is left as a name only, with no species affiliated with it, and so no longer has botanical standing. The most commonly cultivated varieties and garden hybrids are probably derived in whole or in part from the Peruvian species *Amaryllis vittata*, Ait.

Students of the group are invited to study also J. R. Sealy's refutation of Uphof's contentions (Kew Bull. 1939, 49–68). So lucid was the refutation, made in an effort to retain century-old names, that the two opposing views were submitted for review to Sir William Wright Smith, eminent botanist and Regius Keeper of the Royal Botanical Gardens, Edinburgh. Major Albert Pam stated (Journ. Roy. Hort. Soc. lxix, 102–103, 1944) that Sir William Wright Smith reported that, "on the evidence produced, the verdict on the whole must be in favour of Uphof's view and that strict adherence to the Rules of Nomenclature implied acceptance of the change in names proposed by Uphof."

Uphof stated that a new name must be found for the Cape Belladonna known until then as *Amaryllis Belladonna*, Herb. (not L.), and he revived Link's *Callicore rosea*, a name concluded by Hannibal to be antedated by *Amaryllis rosea*, Lam. Hannibal concluded further that the Cape Belladonna was properly a Brunsvigia and for it made the new name of *B. rosea*, as seen in the following synonymy:

Brunsvigia rosea, (Lam.) Hannibal, in Herbertia, x, 63 (1943).

Amaryllis rosea, Lam. Encyc. i, 133 (1789).

Amaryllis Belladonna, Herb. Amaryllidaceæ, 114–161 (1837), not L. Sp. Pl. 293 (1753).

Callicore rosea, Link, Handbuch dur Erkennung der Nutzbartsen, 193 (1829).

Division of Brodiæa

About ten years ago Dr. Robert F. Hoover commenced publication of his monographic revisions of Brodiæa and its generic segregates. As a result of conclusions presented in his several papers, in one by Herter on the Uruguayan relatives, and in another by W. T. Stearn, it is believed that the cultivated members of the conventional genus Brodiæa belong, in fact, to four genera. Cytological studies by Madeline Burbanck (Bot. Gaz. ciii,

247–265, 1941, and cv, 339–345, 1943) presented data in support of these generic segregations.

Brodiæa in its broadest sense has been used to account for plants of both North and South America. As shown by Hoover (Bull. Torr. Bot. Club, lxvi, 161–166, 1939), and observed in part earlier by Sereno Watson, E. L. Greene, and W. G. Herter, there are good characters for separating generically the "Brodiæas" of the southern hemisphere from those of the northern hemisphere. A contrast of these characters follows:

Southern hemisphere	Northern hemisphere
Rootstock a tunicated bulb	Rootstock a solid corm
Pedicels not jointed	Pedicels jointed
Leaf-bases contiguous over the bulb	Leaf-bases not contiguous over the corm
Involucral bracts 1 or 2, ascending	Involucral bracts 3 or more, spreading or reflexed

Instances are reported of the character of the flower-pedicel or of the involucre not always being constant; however, no inconstancy is known in the cormous versus bulbous rootstock or of the associated leaf-base character. These characters of themselves are of significance. Add to them the geographic discontinuity for the two groups (perhaps indicative of two separate evolutionary lines) and the cause for generic segregation is greatly strengthened.

The only commonly cultivated South American representative is the Spring Star-Flower of Argentina and Uruguay. It is currently known as *Brodiæa uniflora*, and has been placed from time to time and by various workers in the genera Milla, Triteleia, Leucocoryne, Hookera, Nothoscordum, and Beauverdia. The name accepted for it in the revised Manual is *Ipheion uniflorum*, (Lindl.) Raf., and the taxonomic and nomenclatorial situation supporting this treatment has been well presented by Stearn (Gard. Chron. ser. 3, cxiv, 60–61, 1943). The bulbous genus Ipheion is comprised of a number of species and is distinguished from its South American relatives by the presence of a strong garlic-like odor when bruised, and by an inflorescence reduced to a single flower. A treatment of these Uruguayan species (under the generic name Beauverdia) is given by Herter (Boissiera, viii, 503–512, 1943). As pointed out by Stearn, this segregation of onion-smelling one-flowered species, often treated as a section of Nothoscordum, into a separate genus was first effected by Constantino Rafinesque (Fl. Tellur. ii, 12) in 1837. He created for these plants the genus Ipheion, with *Milla uniflora* as its type, renaming it *Ipheion uniflorum*.

Following Hoover (Bull. Torr. Bot. Club, lxvi, 161–166, 1939: Amer. Midland Nat. xxii, 551, 574, 1939; xxiv, 463–476, 1940; xxv, 73–106, 1941)

the cultivated Brodiæas of the northern hemisphere are segregated into three separate genera: Brodiæa, Triteleia, and Dichelostemma.

Characters used by Stearn in distinguishing them are as follows:

Stamens 6, all fertile and alike (sometimes variable in height); anthers versatile, not appressed to style: corm-tunic straw-colored ..... *Triteleia*

Stamens dissimilar, the inner 3 fertile, outer 3 non-functional; anthers more or less basifixed, appressed to style: corm-tunic dark brown.

Leaves keeled beneath: stigma obscurely 3-lobed or lobes not spreading ..... *Dichelostemma*

Leaves rounded beneath, not keeled: stigma-lobes spreading or recurved ..... *Brodiæa*

The binomials heretofore treated as belonging to Brodiæa, accounting for the more commonly cultivated species and included in the revised Manual, are:

Brodiæa californica, Lindl.
Brodiæa coronaria, (Salisb.) Engler
Dichelostemma pulchellum, (Salisb.) Heller (*Brodiæa capitata*)
Dichelostemma Ida-maia, (Wood) Greene (*Brodiæa Ida-maia*)
Ipheion uniflorum, (Lindl.) Raf. (*Brodiæa uniflora*)
Triteleia grandiflora, Lindl. (*Brodiæa Douglasii*)
Triteleia hyacinthina, (Lindl.) Greene (*Brodiæa hyacinthina*)
Triteleia ixioides, (Ait. f.) Greene (*Brodiæa ixioides*)
Triteleia laxa, Benth. (*Brodiæa laxa*)

IRIDACEÆ

Crocus Kotschyanus, Koch, Ind. Sem. Hort. Berol. 17, 1853 [1854], and in Ann. Sci. Nat. ser. 4, i, 351 (1854).

Crocus zonatus, J. Gay ex Tchihat. Asie Min. Bot. ii, 525 (1860), *nomen nudum;* Klatt, in Linnaea, xxxiv, 682, 720 (1866).

It is indeed surprising that for nearly a century a plant could become established and universally accepted by a name which is clearly antedated by another. This native Crocus of Turkey has long been known to gardeners and botanists as *C. zonatus*, a name well established in the literature. The late Otto Stapf of Kew reviewed this case (Bot. Mag. t. 9044, 1924) and wrote, "it is with some reluctance that we go back to the original name, *C. Kotschyanus*, which however, should never have been suppressed."

This now common garden Crocus was first described by Carl Koch in 1854. (Koch's seed index or list dated 1853 was not published until 1854). He named the plant *Crocus Kotschyanus* in honor of Theodor Kotschy, the well-known Austrian collector of the middle nineteenth century. Kotschy had sent to Erfurt (whence they came to Koch at Berlin) corms

that he had gathered in alpine pastures in the Bulgar Dagh, Cilicia (now better known as a part of Anatolia, Turkey) on the northwest slopes of the Taurus Mountains.

Specimens collected two years later by Balansa in the same area came under the study of the French botanist, Jacques Gay, who recognized the plant as new to science and named it *Crocus zonatus*. The first publication of this name was in 1860 by Pierre de Tchihatcheff in his work on Asia Minor. However, no description accompanied the name. It was not until six years later that the name *C. zonatus* was legitimately published by F. W. Klatt in Linnaea.

The source of this nomenclatorial confusion lies in the writings of George Maw who, according to Stapf's account, considered the name *Kotschyanus* unavailable since it had been applied to a variety of another species of Crocus, and he ruled it out also because "it does not appear that Gay's *zonatus* had ever been collected prior to Balansa's visit to the Taurus in 1855." Maw erred in his nomenclatorial stand and was unaware of Kotschy's earlier collections. Since Maw published a monograph of the genus Crocus (1886), his views with regard to this species were followed by botanists and horticulturists with undue confidence.

Iris crocea, Jacquem. ex R. C. Foster, in Contr. Gray Herb. cxiv, 41 (1936).

Iris aurea, Lindl. in Bot. Reg. xxxiii, t. 59 (1847), not Raf. (1830) nor Link (1821).

One of the beardless irises presumed to be native to Kashmir was first named *Iris aurea* by Lindley in 1847 and since then has been so known universally by horticulturists and most botanists. Robert Foster pointed out that the binomial was used earlier by Rafinesque for a variant of *I. Pseudacorus*, L., and prior to that by Link for a color variant of *I. halophila*, Pall. The name *I. aurea*, Lindl., is a later homonym (hence illegitimate), and is replaced by the next available legitimate name of *I. crocea*. Foster cited the authority of the name *I. crocea* as "Jacq. ex Baker, in Gard. Chron. ser. 2, vi, 584 (1876) in syn." Names published in synonymy are illegitimate and in the absence of any other binomial for the species the name *Iris crocea* stands but the author citation is as cited above.

What is Iris orientalis of gardens?

It has long been recognized that the name *Iris orientalis* has been applied to more than one species. The first to use the name was Philip Miller in 1768. Three years later Linnæus applied the name *Iris ochroleuca* to this same species. In 1913 W. R. Dykes published the latest monograph of the genus (The Genus Iris) and turned down Miller's *I. orientalis* on

the grounds that it was "based on a confusion between a Pogoniris and an Apogon." Subsequent studies have rejected this view (Bergmans 1939) and reinstated Miller's older name of *Iris orientalis* for the plant known to some horticulturists as *I. ochroleuca*. The reinstatement of Miller's name of *I. orientalis* is not an innovation. It was used by Baker for the species that Linnæus called *I. ochroleuca*, and was taken up for the plant by Hasselbring in Bailey's Cyclopedia. Dykes appeared to be the first to reject it and did so without the detailed discussion, or even mention of reference to any Miller specimens that would be expected of monographic work. No author taking up Linnæus' name has hesitated to cite Miller's older name as an unqualified synonym. There is no evidence known to me of study of the problem independent of Dykes. In view of these situations, and because Baker is an acknowledged scholar of Iridaceæ, Dykes' views on this matter are not followed in the revised Manual. The question remains open, however, and will be resolved only after careful study of Miller's specimens.

In 1784 Carl Peter Thunberg described four species of Iris in his Flora Japonica, *I. squalens*, *I. sibirica*, *I. versicolor*, and *I. graminea*. Ten years later he redesignated them respectively in part as *I. japonica*, *I. orientalis*, *I. versicolor*, and *I. ensata*. To them he added a fifth species, *I. sibirica*, L. In the case of *I. orientalis* he made no reference to the earlier use of the name by Miller, nor did he indicate his *I. orientalis* to be anything other than a new species. Thunberg's *I. orientalis* was not the species to which Miller had already assigned the name.

One of the early superintendents of the Cambridge University Botanical Garden was James Donn, and in the sixth edition of his "Hortus Cantabrigiensis" (1811) he listed *Iris sanguinea*. Subsequent authors have taken up this name, crediting Donn as its author, on the assumption that it was based on the species Thunberg in 1794 called *Iris orientalis*. However, this is purest assumption, since Donn's name is strictly a *nomen nudum*, one of many naked names in a list. It is without botanical standing.

It would be expected that Dykes' outstanding monograph of the genus, published a century later, would clarify the situation. Such expectation is short of fruition. Dykes rejected Miller's name of *I. orientalis* in favor of the later *I. ochroleuca*, L. He took up Thunberg's *I. orientalis* for a presumed Japanese species and believed it to be Thunberg's species of that name, treating *I. sanguinea*, Donn, as a synonym.

The problem was studied by Lundström in 1914 (Act. Hort. Berg. v (3), 1–23) who, after an examination of Thunberg's type in Uppsala and later Japanese material in the Botanical Museum of Uppsala, concluded (1) that the type specimen of Thunberg's *I. orientalis* was not specifically distinct from typical *I. sibirica*, L., and (2) that material cultivated as *I. orientalis*, Thunb., was not that species at all but represented a series of

hybrids between *I. sibirica* and a species he described as new under the name *I. Thunbergii*. Lundström's contention that garden elements grown as *I. orientalis* were of hybrid origin was not supported by any experimental data but was based on their being allegedly morphologically intermediate between the two postulated parents.

The case was restudied in 1926 by the Japanese botanist, Gen'ichi Koidzumi, who also had access to the Thunberg specimens. He concluded that *I. orientalis*, Thunb., was distinct from *I. sibirica*, L., and, since the name *orientalis* was a later homonym and hence not available, renamed it *I. extremorientalis*. He recognized *I. sanguinea*, Donn, as a valid taxonomic entity and treated Lundström's *I. Thunbergii* as a synonym of it.

Recently I brought this taxonomic and nomenclatorial problem to the attention of Professor Hylander of Uppsala, who has informed me that ". . . .The specimen of Thunberg is too scanty to make a decision possible for a person not very well acquainted with this species-complex; . . . .The type specimen shows two flowers apparently already before preparation rather desiccated, but in any case they look too small (and the tepals too narrow?) to allow the plant to be identified with the type still cultivated in Swedish gardens as *I. orientalis* (or, if I am not mistaken, in some clones also cultivated as *I. sibirica*) and which is, in my opinion, identical with or at least belonging to the same form-group as the plants depicted by Ker-Gawler as *I. sibirica* var. *sanguinea* (Donn) and by Dykes as *I. orientalis* Thunb. . . . .As its author should perhaps most correctly be cited Hornemann, for in his *Hortus regius hafniensis* I (1814), [1813, fide copy at Gray Herbarium, Cambridge, Mass.] the name *I. sanguinea* is published together with a Latin diagnosis."

All of these findings leave the taxonomic status of our cultivated *I. orientalis* unclarified. Living material of Lundström's *I. Thunbergii* is presumed to be extant at the Bergianska Tragarden in Stockholm. Cytogenetical studies should be made of all of these elements and their results, coupled with taxonomic considerations, may yet help to bring order to the present confusion. At all events, we may not properly call the garden element *I. orientalis* and the safest course seems to be to treat it as *I. sanguinea*, Hornem.

The valid names of these three elements are accepted provisionally as given below, together with their partial synonymies:

Iris orientalis, Mill. Gard. Dict. Ed. 8, no. 9 (1768).
Iris ochroleuca, L. Mant. ii, 175 (1771).

Iris sanguinea, Hornem. Hort. Reg. Hafniensis, i, 58 (1813).
Iris sibirica, Thunb. in Trans. Linn. Soc. (Lond.) ii, 328 (1794), not L. (1753) nor Thunb. (1784).

Iris sanguinea, Donn, Hort. Cantab. Ed. 6, 17 (1811), *nomen nudum*.
Iris sibirica, L., var. *sanguinea*, Ker, in Bot. Mag. t. 1604 (1813).
Iris hertschinskiana, Lodd. Bot. Cab. t. 1863 (1822–23).
Iris hæmatophylla, Fisch. ex Sweet, Brit. Fl. Gard. t. 118 (1825), not Link.
Iris sibirica, L., var. *orientalis*, Maxim. Mel. Biol. x, 709 (1880).
Iris orientalis, Thunb. sec Dykes, The Genus Iris, 23 (1913), not Thunb. (1794).
Iris Thunbergii, Lundström, in Act. Hort. Berg. v (3), 16 (1914).

Iris extremorientalis, Koidz. in Bot. Mag. Tokyo, xl, 330–331 (1926).
Iris orientalis, Thunb. in Trans. Linn. Soc. (Lond.) ii, 328 (1794), not Mill. (1768).
Iris sibirica, Thunb. Fl. Japon. 33 (1784), not Thunb. (1794) nor L. (1753).

MUSACEÆ

Common in tropical gardens, and perhaps less so in conservatories, is the West Indian member of the Banana family long known as *Heliconia Bihai*. In a study of the type species of Heliconia, W. H. Hodge found that the plant called *H. Bihai* was not the one to which Linnæus originally applied that name (Contr. Gray Herb. cxxxv, 134–137, 1941).

Two species of Heliconia grow in similar habitats in the Lesser Antilles. While vegetatively similar, they offer striking color differences in the inflorescence-bracts: a deep crimson-red to maroon or occasionally wholly green or yellow in one (until recently known as *H. Bihai*); and bright, almost scarlet, red with yellow margins in the other (known as *H. rutila*). As pointed out by Hodge, the plant Linnæus described as *H. Bihai* was the species with the variegated inflorescence-bracts; the other he treated as an unnamed variety. In 1903, a study of the identities of these plants was published by R. F. Griggs, who unfortunately misinterpreted Linnæus' original use of the binomial *H. Bihai* and applied it to the non-variegated plant, calling the variegated-bracted species *H. rutila*.

In correcting the situation, the name *Heliconia Bihai*, L., is returned to the variegated-bracted plant (a species not much grown here) and the oldest available name is applied to the Wild Plantain, *Heliconia caribæa*, Lam. A partial synonymy of the two entities as given by Hodge follows:

Heliconia caribæa, Lam. Encyc. i, 426 (1783).
Musa Bihai, var. β, L. Sp. Pl. 1043 (1753).
Heliconia Bihai, Auth. not L.

Heliconia Bihai, L. Mant., ii, 211 (1771).

Musa Bihai, L. Sp. Pl. 1043 (1753).

Heliconia variegata, Jacq. Pl. Rar. Hort. Schoen, i, 25 (1797).

Heliconia rutila, Griggs, in Bull. Torr. Bot. Club, xxx, 657 (1903).

Bihai rutila, Griggs, op. cit. xxxi, 445 (1904).

JUGLANDACEÆ

Carya illinoensis, (Wangh.) Koch, Dendrol. i, 593 (1869).

Juglans pecan, Marsh. Arbust. Amer. 69 (1785), *nomen subnudum.*

Juglans illinoinensis, Wangh. in Beitr. Teutsch. Holzger, Forstwiss, Nordam, Holz. 54, t. 18 (1787).

Hicoria Pecan, Britt. in Bull. Torr. Bot. Club, xv, 282 (1888).

Carya Pecan, Engler & Graebn. in Notizbl. Bot. Gart. Berlin, iii, append. 9, 19 (1902).

Above is the partial but essential synonymy of the common Pecan-nut of the Mississippi Valley region, adopted from the full citation and accounting by Rehder (Journ. Arnold Arb. xxii, 571–572, 1941). The Pecan is best known in contemporary literature by one of two binomials, *Carya Pecan* or *Hicoria Pecan.* There remains no question as to the choice of the generic name, for Carya has been conserved over Hicorius and Hicoria. The name *Pecan* as a binary epithet for this plant had its beginning in Humphrey Marshall's book on the trees of North America. His description of few words in no way distinguished this species from others of the genus. Because of its gross indefiniteness, it was interpreted by Rehder as a *nomen subnudum* and as such is invalid. The next available name, as adopted by Robinson & Fernald in the Gray's Manual (Ed. 7, 1908), is *Carya illinoensis.* When Koch transferred Wangenheim's name from Juglans (the genus of Walnuts) to Carya he changed the spelling from *illinoinensis* to *illinoensis* on the grounds that the earlier spelling probably represented an unintentional error. This correction is universally accepted.

Juglans ailantifolia, Carr. in Rev. Hort. l, 414 (1878).

Juglans Sieboldiana, Maxim. in Bull. Acad. Sci. Petersb. xviii, 60 (1872), not *J. Sieboldiana,* Goeppert (1854), fossil.

Juglans cordiformis, Maxim. op. cit. 62, not *J. cordiformis,* Wangh. (1787).

Juglans ailantifolia var. **cordiformis,** (Makino) Rehd. in Journ. Arnold Arb. xxvi, 68 (1945).

Juglans Sieboldiana var. *cordiformis,* Makino, in Bot. Mag. Tokyo, ix, 313 (1895).

Juglans cordiformis var. *ailantifolia*, Rehd. in Journ. Arnold Arb. xxvi, 472 (1945).

The above comprise the valid names and essential synonymies of the Japanese Walnut and Heartnut respectively, and have been taken from the recent paper by Little (Phytologia, ii, 459–460, 1948). In the text of the revised Manual the plants were given the names accepted for them by Rehder in 1945, but corrected in a footnote on page 1073 of the index (i.e. *J. ailantifolia* for the Japanese Walnut and *J. ailantifolia* var. *cordiformis* for the Heartnut). However, Little has demonstrated Maximowicz's name of *J. cordiformis* to be a later homonym of *J. cordiformis*, Wangenheim, "a name not in Index Kewensis but familiar as the basonym of *Carya cordiformis* (Wangenh.) K. Koch."

CORYLACEÆ

As taken up by Fernald (Rhodora, xlvii, 303, 1945) and adopted by Rehder (Journ. Arnold Arb. xxvii, 169–170, 1946), the valid name for the family containing the birches, alders, hazelnuts, and others becomes Corylaceæ and the well-established name of Betulaceæ is its synonym. The situation is one of simple priority, the name Corylaceæ having been given to a group (that also then included Fagus, a genus now excluded and the type of the family Fagaceæ) by Charles François Mirbel in 1815; the name Betulaceæ, in the strict sense, was not applied to the family until 1830 by Friedrich Bartling.

FAGACEÆ

In 1946, Fernald published the results of his study of the identity and nomenclature of the Laurel Oak (Rhodora, xlviii, 137–145). According to his treatment the valid name of the tree passing as *Quercus laurifolia* is *Q. hemisphærica*, and the name *Q. laurifolia* is considered to belong to another species. A summary of Fernald's accounting of the nomenclatorial history of the two species follows.

Two species of oaks are involved: one, originally named by Bartram *Q. hemisphærica* and description published by Willdenow in 1805, is a tree more or less spherical in form, has thick leathery opaque persistent leaves and a nut borne in a shallow saucer-shaped cup; the other, originally described and named *Q. laurifolia* by André Michaux (1803), is a tree with thinner membranaceous leaves, deciduous in early winter, that show by transmitted light a clear and intricate network of veins, and acorn-cups shallowly cup-shaped to deeply saucer-shaped. Unfortunately, early botanists misapplied Michaux's name to Willdenow's plant and other names (*Q. obtusa*, Ashe, *Q. rhombica*, Sarg.) were given to the less common and

more deciduous species. *Quercus hemisphærica*, Willd., was often erroneously referred to as *Q. nigra*, L.

Thus it is that the name of *Quercus hemisphærica*, Bartram ex Willd., is restored to the plant traditionally known as *Quercus laurifolia*. This tree is commonly cultivated in the Southeast and a particularly densely growing habit-form (sometimes known in the trade as *Darlingtonii*), early introduced as a street tree in Darlington, South Carolina, is better known locally as the Darlington Oak.

MORACEÆ

Artocarpus altilis, (Parkinson) Fosberg, in Journ. Wash. Acad. Sci. xxxi, 95 (1941).

Sitodium altile, Parkinson, Journ. Voy. to S. Seas in H. M. S. Endeavor (1773).

Artocarpus communis, Forst. Char. Gen. 191 (1776).

Radermachia incisa, Thunb. in Handl. Vet.-Akad. Stockh. xxxvii, 254 (1776).

Artocarpus incisus, L. f. Suppl. 41 (1781).

Fosberg has shown that the Breadfruit was first described in 1773 by Sidney Parkinson and named *Sitodium altile*. Artocarpus, Forst., is a later generic name (Sitodium, Parkinson, antedates it by three years) proposed by Fosberg (Amer. Journ. Bot. xxvi, 231, 1939) for conservation and retained here. However, Parkinson's specific epithet is the oldest one known to have been applied to the Breadfruit and the resultant binomial, *Artocarpus altilis*, is the valid name.

The Jakfruit of India and the Champedak of Malaya have been confused. Merrill treated them as conspecific under the name *Artocarpus integra*, (Thunb.) Merr. More recent studies by Corner (Gard. Bull. Straits Settlements, x, 56, 1939) have shown that the two plants are not the same and the name *A. integra* must be restricted to the Malayan species and the Indian Jakfruit be called *Artocarpus heterophyllus*, Lam. This view has been adopted by Hill (Bot. Mus. Leaflets Harvard Univ. x, 145–146, 1942).

Ficus Lacor, Buch.-Ham. in Trans. Linn. Soc. (Lond.) xv, 150 (1827).

Ficus infectoria, Roxb. Fl. Ind. Ed. 2, iii, 310 (1832), not Willd. (1797).

The species of Ficus cultivated in Florida for ornament have been the subject of recent studies by Miss Mary F. Barrett. She emphasized the fact that the tree commonly grown as *Ficus infectoria* is properly *F. Lacor* (Amer. Midland Nat. xxxvi, 424–425, 1946) and cited this opinion also to have been held by Schneider (in Sarg. Pl. Wils. iii, 309, 1916), Handel-Mazzetti

(in Symb. Sin. vii, 92–93, 1929) and by Rehder (in Journ. Arnold Arb. x, 124, 1929).

The cultivated *Ficus infectoria*, a tree of India, was given this name by Roxburgh in 1832 in the belief that it was the same species as the fig so named by Willdenow in 1797. However, it was found that Roxburgh's fig was a different species which in 1827 had been named *Ficus Lacor* by Lord Hamilton (née Francis Buchanan).

POLYGONACEÆ

The name *Fagopyrum esculentum*, Moench, for the Buckwheat is deeply entrenched in the literature. On the basis of evidence presented by Mansfeld (Fedde, Repert. xlvi, 101, 1939) the name *Fagopyrum sagittatum* was taken up in place of it by Dr. A. F. Hill (Bot. Mus. Leaflets Harvard Univ. x, 157, 1942). The latter name was published by Gilibert in 1792 (Exercitia Phytologica, ii, 435) and antedated Moench's well-known binomial by two years. It would appear that Mansfeld and Hill were justified in accepting the older name. However, careful analysis of the matter presents other views.

Gilibert's works are exceedingly rare and no complete copies of them are known to exist in this country, but microfilm copies are available at the library of the University of Michigan. In my correspondence with Dr. Rogers McVaugh of that institution he made it clear to me that inasmuch as Gilibert deliberately rejected many binomial names in favor of polynomials there was serious question as to their validity. In view of the pertinence of this problem to the name of the buckwheat, McVaugh, on invitation, prepared an analysis of Gilibert's works in which data are presented objectively to support the contention that the Gilibert names should not be taken up pending review of the validity of the works concerned by competent authority appointed by the International Committee on Botanical Nomenclature.

That analysis is published herewith as Article 3 of this fascicle. In the interests of nomenclatorial stability and pending the outcome of official opinion on the matter, it has been decided to retain in the revised Manual the name *Fagopyrum esculentum* for the Buckwheat.

BASELLACEÆ

Boussingaultia gracilis, Miers, var. **pseudo-baselloides,** (Hauman) Bailey, page 80.

Boussingaultia baselloides, Hook. in Bot. Mag. t. 3620 (1837), not HBK. (1825).

Boussingaultia gracilis forma *pseudo-baselloides*, Hauman, in Anales Mus. Nac. Hist. Nat. Buenos Aires, xxxiii, 356 (1925).

The Madeira- or Mignonette-Vine has been known for a century or more as *Boussingaultia baselloides* and is now considered to be only a variant of the South American *B. gracilis*. From the treatment of the genus by Hauman (op. cit. 347–359) it is clear that the cause for this change dates back to an error of identification by Sir William Hooker in 1837 when he published a color plate and description of the Madeira-Vine in Botanical Magazine, believing it to be identical with *Boussingaultia baselloides* of Humboldt, Bonpland, and Kunth.

The type (original specimen) of *B. baselloides* was collected near Quito, Ecuador. Material of the cultivated Madeira-Vine was sent from Buenos Aires, Argentina, to England and served as the basis of the illustration published by Hooker. The two plants are so markedly different as to be placed by Hauman in two sections of the genus: *B. baselloides*, with flowers having a single style and a capitate or obscurely three-lobed stigma; and *B. gracilis*, with the style divided to or almost to the base forming three style-branches. There are foliage characters of distinction between the two also: the leaves very broad, often broader than long, with obtuse apices and cordate bases in *B. baselloides;* and lanceolate to ovate, with acuminate apices and broadly attenuate bases in typical *B. gracilis*. The var. *pseudo-baselloides* differs from the typical element of *B. gracilis* in having the leaves larger, broadly ovate, basally cordate, the apices varying from obtuse to apiculate. There are also differences in the inflorescences and flowers, but both have styles with three linear style-branches rather than the single style of *B. baselloides*, Hook.

CARYOPHYLLACEÆ

Arenaria Biebersteinii, Schlecht. in Ges. Naturf. Fr. Berl. Mag. vii, 202 (1813).

Arenaria filifolia, Bieb. Fl. Taur.-cauc. i, 344 (1808), not Forsk. (1775).

Arenaria graminifolia, Schrad. Hort. Goett. i, 5 (1809), not Arduini (1764).

Sabulina procera, Reichb. Fl. Germ. Exc. 787 (1832), not *Arenaria procera*, Spreng. ex Hornem. (1813).

Eremogene graminifolia, Fenzl, Verbr. Alsin. 37 (1833).

Eremogene procera, Reichb. Icon. Fl. Germ. v, 33 (1842).

Arenaria Preslii, Nym. Conspectus, 113 (1879).

The plant widely grown and distributed as *A. graminifolia* was so

named by Professor Schrader in 1809. However, the Italian botanist, Pietro Arduini, assigned this name to another and very different Sandwort nearly a half-century earlier. Arduini's name must be retained for the species he described and another must be found for Schrader's plant. As pointed out by Ascherson and Graebner (Synop. Mitteleurop. Fl. v (I), 202, 1916) and more recently by Mansfeld (Fedde, Repert. xlvi, 737, 1939), the next earliest legitimate name for this species was given by Schlechter who named it in honor of the Russian botanist, Marschall von Bieberstein, the latter having misidentified it with Pehr Forskal's *Arenaria filifolia*. For these reasons, most of the material grown as *A. graminifolia*, *A. filifolia*, and *A. Preslii* should properly be renamed *Arenaria Biebersteinii*.

Dianthus hyssopifolius, L. Cent. Pl. i, 11 (1755).

Dianthus monspeliacus, L. Syst. Ed. 10, ii, 1029 (May-June 1759).

Dianthus monspessulanus, L. Amoen. Acad. iv, 13 (Nov. 1759).

This Cottage Pink, a perennial southern and eastern European species allied to *D. plumarius*, differs from the latter in the non-glaucous bright green foliage and odorless flowers subtended by long-acuminate bracts. It is known generally as *D. monspessulanus* and the change to *D. hyssopifolius* (an older Linnæan name) is based on acceptance of Mansfeld's treatment (in Fedde, Repert. xlvi, 437, 1939). I have not seen Linnæus' original publication of 1755 accounting for the name and the plant.

NYMPHÆACEÆ

For over a century the largest of water-lilies, native to British Guiana and the Amazon in Brazil, has been known almost universally as *Victoria regia*. The name of the plant is now considered to be *V. amazonica*. The facts on which this change in name is based have been available to botanists and horticulturists for many decades and the case, as indicated by the following synonymy, is one of simple priority:

Victoria amazonica, (Poeppig) Sowerby, in Ann. & Mag. Nat. Hist. ser. 2, vi, 310 (1850).

Euryale amazonica, Poeppig, in Notizen aus den Gebiete der Natur- und Heilkunde, xxxv, 131–132 (1832). [op. cit. in Index Kewensis, "Frioriep's Notizen."]

Victoria regia, Lindl. Monogr. Victoria Regia, 3 (1837).

Victoria regina, J. E. Gray, in Mag. Zool. & Bot. ii, 440 (1838).

Victoria regalis, Schomb. in Mag. Zool. & Bot. ii, t. 12 (1838).

Anneslea amazonica, Presl, Bot. Bemerk. 103 (1844).

Victoria amazonica, Klotzsch, in Bot. Zeit. v, 245 (1847).

Victoria reginæ, Hook. in Kew Journ. ii, 314 (1850).

It is difficult to understand how the validity of the epithet *amazonica* could have been kept hidden so long. To be sure, the original publication of *Euryale amazonica* by Poeppig was in an obscure and little-known periodical. The journal is not in the libraries of Cornell University nor the New York Botanical Garden, the copy available to this study being in the library of the New York Academy of Medicine, where it was consulted in 1923 by Dr. John H. Barnhart who sent a copy of the lengthy Latin diagnosis to L. H. Bailey. Speculation concerning the desirability of retaining so commemorative a name as *regia* may produce sentimental reasons for its not having been replaced by *amazonica*, but neither speculation not sentiment is a factor in determining the validity of plant names.

There is no doubt that Poeppig's plant is a species of Victoria and the botanical literature has universally treated it as conspecific with Lindley's *V. regia*. Planchon, in his lengthy treatise on the Victoria Water-lily (Fl. des Serres, vi, 193–224, 1850–51) observed (pages 196 and 199) that Poeppig had been the first to name the species. Lindley (Bot. Reg. 1848) also knew of Poeppig's earlier discovery and naming of the plant but, as was customary with botanists of that era when there were no International Rules of Nomenclature, did not consider himself obligated to take up an epithet given a species under a different generic name.

Lindley based his name of *Victoria regia* on collections made in 1836 by Robert Schomburgk from the Berbice River in British Guiana while the latter was a member of an expedition of the Royal Geographic Society. On the other hand, Eduard Poeppig wrote his detailed description of the conspecific *Euryale amazonica* from material growing at the mouth of the river Teffé, near Ega (now the village of Teffé, about 320 miles west of Manaos) in the upper Amazon region of Brazil. As a matter of historical interest, the plant was first known to Europeans from its discovery by Haenke in Bolivia in 1801.

The Brazilian material was treated by Tricker (The Water Garden, 94, 1897) as *Victoria regia* var. *Randii*, based on plants introduced by Edward S. Rand Jr. of Para, Brazil. How the plants reached Para is not stated. The variant was reported by Tricker to differ from the Guianan element by its more robust habit, young leaves of darker bronze color, and flowers deep crimson on the second day, rather than pink. Conard, in correspondence with L. H. Bailey, expressed the opinion that these differences were only of horticultural significance. For those who would prefer to retain this tenuous and horticultural varietal distinction, the plant known as var. *Randii* would become typical *V. amazonica* and that known as *V. regia* would be considered a variant of *V. amazonica*.

Aconitum Carmichaelii, Debx. in Act. Soc. Linn. Bord. xxxiii, 87 (1879).

Aconitum Fischeri, Forbes & Hemsl. in Journ. Linn. Soc. Lond. Bot. xxiii, 20 (1886), not Reichb. (1823–27).

The above synonymy accounts for the change in the name of this common Fisher's Aconite of gardens. Complete synonymy is given by Munz (Gent. Herb. vi, 488–491, 1945), where the plant is amply described, figured and its taxonomy discussed. It is unfortunate that the name *Fischeri* is a later homonym, but inasmuch as it had been used earlier by Reichenbach for a different species of Aconite, the next available legitimate name must be taken up for this plant, *Aconitum Carmichaelii.*

The plant commonly known as Wilson's Aconite becomes *A. Carmichaelii* var. *Wilsonii,* (Stapf) Munz, page 80.

Aconitum Henryi, Pritz. in Engler Bot. Jahrb. xxix, 329 (1900), emend. Hand.-Mazz. in Act. Hort. Gotoburg, xiii, 129 (1939).

Aconitum autumnale, Lindl. in Journ. Roy. Hort. Soc. ii, 77 (1847), not Reichb. (1821).

Aconitum californicum, Hort.

Aconitum Napellus var. *Sparksii,* Hort.

This binomial, *Aconitum Henryi,* represents the plant commonly grown as *Aconitum autumnale* or as Spark's variety. As explained by Munz (Gent. Herb. vi, 498–501, 1945), it is difficult to establish with certainty the identity of the plant Lindley named *A. autumnale,* and while the species most closely matches *A. Henryi,* it also has characters aligning it with *A. Carmichaelii.* The name *autumnale* is not available for this species since it was used earlier by Reichenbach for another plant.

Clematis dioscoreifolia, Lévl. & Vanoit, var. **robusta,** (Carr.) Rehd. in Journ. Arnold Arb. xxvi, 70–71 (1945).

Clematis paniculata, Thunb. in Trans. Linn. Soc. (Lond.) ii, 337 (1794), not Gmel. (1791).

Clematis Flammula robusta, Carr. in Rev. Hort. xlvi, 465, fig. 59 (1874).

Clematis recta π *paniculata,* Kuntze, in Verh. Bot. Ver. Brandenb. (Abh.) xxvi, 115 (1885).

As explained by Rehder this herbaceous or suffrutescent vine, commonly grown as a screening subject and long known as *Clematis paniculata,* most unfortunately must take a different name, since Thunberg's name is a later homonym of *C. paniculata,* Gmel. (in L. Syst. Ed. 13, iii, 873, 1791).

Gmelin's name is valid for a New Zealand species currently treated in the literature as *C. indivisa*, Willd. (1800).

Clematis dioscoreifolia, Lévl. & Vaniot (1909), is a somewhat different plant from *C. paniculata*, Thunb., but it was the opinion of Rehder that the two are undoubtedly conspecific. In the absence of any other binomial, there is no earlier name to replace the illegitimate *C. paniculata* than *C. dioscoreifolia*. Rehder considered the plant of gardens to be only varietally distinct, and the earliest available varietal epithet is Carrière's *robusta*. For these reasons, the name of *C. paniculata* of gardens becomes *C. dioscoreifolia* var. *robusta*.

Pæonia lactiflora, Pall. Reise, iii, 286 (1776).

Pæonia albiflora, Pall. Fl. Ross. i (2), 92, t. 84 (1788).

Pæonia edulis, Salisb. Parad. Lond. t. 78 (1805).

Pæonia edulis var. *sinensis*, Sims, in Bot. Mag. t. 1768 (1815).

Pæonia albiflora var. *fragrans*, Sabine, in Trans. Hort. Soc. Lond. ii, 278, t. 18 (1816).

Pæonia edulis Reevesiana, Paxt. Mag. Bot. i, 197 (1841).

Pæonia Reevesiana, Loud. Hort. Brit. Ed. Nov. Suppl. 601 (1850).

This is the species from which many of the garden forms of the so-called Chinese Peonies have been derived and which is known throughout contemporary literature as *Pæonia albiflora*.

The reasons for this change in name were published by F. C. Stern (A Study of the Genus Pæonia, 91–92, 1946). Peter Simon Pallas published the description of the plant and named it *Pæonia lactiflora* in his important work accounting for his travels in eastern Russia in 1772 and 1773, as growing in the Lake Baikal province. For reasons not known to us, he published twelve years later in Part II of his Flora Rossica the better-known name of *P. albiflora* for the very same species. The earlier name of *Pæonia lactiflora* is valid for the species and *P. albiflora* is only a synonym.

The case of the Japanese Anemone

In a recent article Bowles and Stearn have presented a scholarly treatment on the history, systematics, and nomenclature of the Japanese Anemones that ornament our gardens in the autumn (Journ. Roy. Hort. Soc. lxxii, 261–268, 297–308, 1947). It is most disturbing to learn from them that the plant perhaps most commonly grown in American gardens as the Japanese Anemone, or a fancy-named form of it, is in fact a hybrid named *A. hybrida* by Paxton in 1848 (who at that time believed it to be a species indigenous to Japan), and that the authentic material of the var.

hupehensis becomes *A. hupehensis*, with the little-grown *A. japonica* having to be treated as *A. hupehensis* var. *japonica*. The accounting for these changes has been presented in documented detail by Bowles and Stearn and is summarized below.

Paradoxically, most of the so-called Japanese Anemones are derived from a species native to China, one that was cultivated in Japan long before that country opened its ports to commerce with the West. It was during this protracted period of cultivation by the expert Japanese that the taller double- or semi-double-flowered forms now most commonly grown were developed and it is the involved synonymy of this "*A. japonica*" that is our present concern.

In brief, the cultivated autumn-flowering Anemones are of five more or less distinct sorts. All are of Asiatic, and mostly of Chinese, origin. The half-hardy *Anemone vitifolia*, Buch.-Ham., is readily separated from the others by leaves deeply lobed but never divided into three leaflets. All of the remainder have basal leaves of three leaflets. Of the remaining four *A. tomentosa*, (Maxim.) P'ei, is the only one to have leaves densely and closely white-tomentose beneath, the lower leaf surface completely covered by the entangled hairs. It is among the remainder that most of the garden kinds are to be sought. Plants whose flowers have sepals (sometimes termed *tepals*, since it is difficult in this genus to determine whether they are sepals or petals) 5 or 6 in number of almost orbicular outline, and whose height is usually less than 2 feet, are *A. hupehensis;* those with flowers having more sepals are either *A. hupehensis* var. *japonica* (sepals usually 20 or more and plants 15–24 inches high), or *A. hybrida* or forms of it (sepals 6–20 and plants invariably 3–5 feet high).

The nomenclatorial status of these last three elements is most complex. The essentials, however, are as follows:

Anemone hupehensis, Lemoine, Cat. no. 172, 50 (1909) and Boynton, in Addisonia, xvi, 33, t. 529 (1931).

Anemone japonica var. *hupehensis*, Lemoine, Cat. no. 170, 42 (1908).

Anemone hupehensis var. **japonica,** (Thunb.) Bowles & Stearn, in Journ. Roy. Hort. Soc. lxxii, 265 (1947).

Atragene japonica, Thunb. Fl. Japon. 239 (1784).

Anemone japonica, Sieb. & Zucc. Fl. Japon. i, 15, t. 5 (1835), not Houtt. (1778) nor Hort.

Anemone vitifolia var. *japonica*, Finet & Gagnep. in Bull. Soc. Bot. Fr. li, 68 (1904).

Anemone nipponica, Merr. in Journ. Arnold Arb. xix, 339 (1938).

From the above synonymies, it will be noted that the name *Anemone japonica* is unavailable for this species-complex since it is a later homonym antedated by *A. japonica* of Houttuyn, who applied it earlier to a species of Clematis. Merrill was the first to recognize this situation and published the name *A. nipponica* to replace *A. japonica*. However, Merrill's name is superfluous since it is antedated by *A. hupehensis*. The Rules direct that the oldest legitimate binomial shall (barring certain technical exceptions) be the valid name of a species. When *A. hupehensis* is taken up as the next available binomial it becomes the typical element of the species and the element formerly known as typical *A. japonica* (of Sieb. & Zucc. not Hort.) becomes, nomenclatorially, subordinate to it.

Anemone hybrida, Paxt. Mag. Bot. xv, 239 (1848); Makino, in Journ. Jap. Bot. vii, 4 (1931).

Anemone elegans, Decne. in Rev. Hort. ser. 4, 1, 44, t. 3 (1852).

Anemone japonica var. *elegans*, Franch. in Bull. Soc. Bot. Fr. xxx, 346 (1886).

Anemone japonica, Hort. not Sieb. & Zucc.

This is the common garden representative of the group of autumn-flowering Anemones. It was treated as *A. elegans*, Decne., by Bowles and Stearn (op. cit. 293–307), who wrote "as the alternative name *A. hybrida* seems not to have been validly published until taken up by Makino. . . , *A. elegans* remains the correct name for this hybrid plant." Since the publication of their paper and just as final proof of the revised Manual was to be returned to the publisher, Mr. Stearn most kindly and cooperatively informed me of the need of this change from *elegans* to *hybrida*. He brought to my attention the fact that Mr. Bowles and he had overlooked (as had the compilers of Index Kewensis) the above-cited entry on *Anemone hybrida* and further pointed out that, brief although Paxton's account may be, all of the necessary characters are given that are diagnostic of the hybrid.

BERBERIDACEÆ

Berberis manipurana, Ahrendt, in Kew Bull. 1939, 262–265 (1939).

Berberis Hookeri, Lem., var. *latifolia*, Bean, Trees and Shrubs, i, 243 (1921); Hook. & Thoms. Fl. Ind. 226 (1855).

Berberis Knightii, Hort. not Koch.

Berberis xanthoxylon, Schneid. in Oesterr. Bot. Zeitschr. lxvii, 27 (1918), ex parte.

The above synonymy concerns a tender evergreen Asiatic species grown in warmer climates as *Berberis Knightii*, *B. xanthoxylon*, *B. Hookeri*

var. *latifolia*, or sometimes as *B. Wallichiana* var. *latifolia*. The relationship and identity of the plant have been worked out and published by L. W. A. Ahrendt who had benefit of study of the type and other important collections at the Royal Botanic Gardens, Kew.

In the first place, Ahrendt demonstrated that *Berberis Wallichiana*, DC., was a species very different from *B. Hookeri*, Lem., but that all material known to him to be cultivated as *B. Wallichiana* was in fact *B. Hookeri*. Examination of specimens grown as *B. Knightii* and *B. xanthoxylon* revealed that they were not distinct from those grown as *B. Hookeri* var. *latifolia*, Bean (the latter being a later homonym of *B. Hookeri* var. *latifolia*, Hook. & Thoms., and hence an illegitimate name). A study of these cultivated elements, in conjunction with studies of collections of native Asiatic barberries, showed them to be conspecific with Indian material collected by Watt in Manipur. Because of significant differences in foliage and flowers, Ahrendt separated these cultivated elements as a distinct species and named it *Berberis manipurana*.

LAURACEÆ

Cinnamomum japonicum, Sieb. ex Nees, Syst. Laurin. 79 (1836), pro syn.; Nakai, in Bot. Mag. Tokyo, xii, 517 (1927).

Cinnamomum pedunculatum, Nees, l.c., pro parte, not *Laurus pedunculata*, Thunb. (1784).

The evidence for this change in name of a tree grown as an ornamental in southern California and similar climatic areas has been published by Dr. Caroline K. Allen (Journ. Arnold Arb. xx, 48–50, 1939). The basic reason for the change is that Nees was of the impression that Thunberg's *Laurus pedunculata* was a Cinnamomum and, without having seen a specimen of Thunberg's plant, made the new combination of *C. pedunculatum*. Nakai studied the types concerned and found that Thunberg's plant was neither a Laurus nor a Cinnamomum but belonged to the genus Hedyotis. Inasmuch as Nees, in making the name *C. pedunculatum*, was not describing a species as new but merely transferring an older one to another genus (and erroneously so), his name must stay with the plant on which it was based and for this reason is a synonym of *Hedyotis pedunculata*, (Thunb.) Nakai. The next available name for the tree currently known in cultivation is *Cinnamomum japonicum*. Attention is directed to the fact, as Dr. Allen ably points out, that *C. japonicum* is a tree native to Japan, Formosa, Korea and the Liukiu Islands (the Okinawa group) and that material from southeastern Asia has been misidentified as belonging to this species. This misidentification is to be anticipated with regard to some of the cultivated

material passing as *C. pedunculatum*, now properly to be designated *C. japonicum*.

CRUCIFERÆ

Alyssum murale, Waldst. & Kit. Pl. Rar. Hung. i, 5, t. 6 (1802).

Alyssum argenteum, sensu Boiss. Fl. Orient. i, 270 (1867), not Vitm. Summa Pl. iv, 30 (1790).

The name *Alyssum argenteum* has been used extensively for a pale yellow-flowered suffrutescent perennial grown in rock-gardens and borders. However, this name was first used by Vitman for a species whose fruit was described as being ovate, flat, cinereous, scabrous, and not emarginate. As pointed out by Baldacci (Malpighia, viii, 74, 1894) this description does not agree with that of Boissier who described the fruit as lepidote and ovate or orbicular. Baldacci also reported that plants collected by him near Mt. Timor, Perisnjaka, Albania, were identical with Vitman's plant but not Boissier's.

The late Professor Hayek in his monumental Prodromus Floræ Peninsulæ Balcanicæ (i, 440, 1924) maintained Vitman's plant as specifically distinct from Boissier's, and treated *Alyssum argenteum*, sensu Boiss., as a synonym of *A. murale*, Waldst. & Kit. Fruiting specimens of material grown as *A. argenteum* and desposited in the Bailey Hortorium herbarium match the original descriptions of *A. murale* and agree with Hayek's treatment of that species. They differ from material examined of *A. argenteum*, Vitm., in the fruit being covered with lepidote stellate-pilose hairs of 14–30 rays each and being mostly orbicular in outline (not simple-hairy, scabrous, nor ovate); in general the plants of *A. murale* are of lower stature also.

The Wall Rock-Cress

Probably one of the commonest spring-flowering rock-garden or border perennials is the white-flowered mounding Wall Rock-Cress, almost universally known in the trade as *Arabis albida*. It is most unfortunate that this name is unavailable for the plant and it is to the real regret of all plantsmen that it must be replaced by *Arabis caucasica*. The reasons for this change are given below.

This species is native in the Caucasus of east-central Europe with its range of distribution extending southwestward into Italy. It was first recognized by botanists as a species some time shortly before 1808, for in that year Friedrich Fischer, an eminent Russian botanist of the period, published a list of the plants growing in the gardens of Alexander Razoumoffsky, a Russian diplomat who lived in Gorenki, an ardent plantsman and patron of horticulture. The French title of Fischer's list is "Catalogue du Jardin

des plantes de A. Razoumoffsky à Gorenki." In this catalogue, Fischer credited Steven as the author of the binomial *Arabis albida*, indicating that Steven, considering it to be a new species, had assigned it this name—perhaps only on a seed packet, garden label, or in correspondence. Fischer was the first to publish Steven's name, but did not accompany it with any description. The name of 1808 is a *nomen nudum*—a naked name and illegitimate. In 1812, Fischer published a second edition of the same Catalogue and in it Steven's binomial is listed, again as a *nomen nudum*.

During this period, material of the same species was received and grown at the Royal Botanic Garden, Berlin, and probably not from Razoumoffsky's gardens—for had such been the case it probably would have been received under Steven's name of *Arabis albida*. Carl Willdenow, renowned German disciple of Linnæus and Director of the Berlin Gardens, published in 1809 an accounting of the plants in the botanic garden in Berlin. In this work he published copious descriptions of many plants. On the year following his death in 1812, a number of Willdenow's remaining notes on plants of this garden were published as a posthumous Supplement to his Enumeratio of 1809. One of those named and described in this Supplement was the plant Steven had named (but not described) as *Arabis albida*. Apparently unaware of Steven's name, Willdenow had designated the plant *Arabis caucasica* and at the same time had provided an adequate description. This is the valid name of the Wall Rock-Cress.

A thorough study of this situation was made by the late Professor C. Lacaita (Nuovo Giornale Bot. Ital. n. ser., 25, 1–4, 1918), but perhaps because this Italian serial is not generally referred to by horticulturists nor by American botanists, it has not before been brought to their attention. Authors of contemporary botanical floras where this species is native treat the plant as *Arabis caucasica*, Willd., with *A. albida*, Steven ex Fisch., a synonym. A number of varieties of *A. caucasica* are in the trade.

NEPENTHACEÆ

Nepenthes mirabilis, (Lour.) Druce, in Rep. Bot. Exchange Club Brit. Isls. 1916, 637 [1917].

Phyllamphora mirabilis, Lour. Fl. Cochinch. 606 (1790).

Nepenthes Phyllamphora, Willd. Sp. Pl. Ed. 4, 874 (1805).

The recognition of *mirabilis* as the oldest available specific epithet for this plant was first made by Druce and almost simultaneously by Merrill who published the name *Nepenthes mirabilis* as a new combination a few months later (Interpret. Rumph. Herb. Amboinense, 242, 1917).

CRASSULACEÆ

Sedum rubrotinctum, Clausen, in Cactus & Succ. Journ. xx, 79–83 (1948).

Sedum guatemalense, Hemsl. sensu Walther, and Hort. not Hemsl.

Clausen has pointed out that the plant known in cultivation as *Sedum guatemalense* is not that species and, since the cultivated material is not conspecific with any other known Sedum, gives it the new name cited above.

Sedum oregonense, (Wats.) Peck, Man. Higher Plants of Ore. 361 (1941).

Cotyledon oregonensis, Wats. in Proc. Amer. Acad. Arts & Sci. xvii, 373 (1882).

Gormania Watsonii, Britt. in Bull. N. Y. Bot. Gard. iii, 29 (1903).

Sedum Watsonii, Tidestr. in Proc. Biol. Soc. Wash. xl, 119 (1927).

This plant is treated in Hortus Second as *Sedum Watsonii*. Inasmuch as *Cotyledon oregonensis* and *Gormania Watsonii* are considered conspecific and further since the plant is a Sedum, the valid name becomes *Sedum oregonense*.

SAXIFRAGACEÆ

One of the commonly grown members of the genus Saxifraga, section Dactyloides, is *S. decipiens*, whose much-dissected foliage is in tufts or mounds a few inches high. R. Mansfeld has shown this name, published originally by Ehrlich in 1790, to be a *nomen nudum* unaccompanied by any description (Fedde, Repert. xlvi, 286, 1939) and points out that the next available and legitimate name for the plant is *Saxifraga rosacea*, Moench (1794). This latter name was adopted earlier by Rendle and Britten in their List of British Seed Plants, 450 (1907).

PITTOSPORACEÆ

Sollya fusiformis, (Labill.) Briq. in Ann. Conserv. & Jard. Bot. Genève, xx, 423 (1919).

Billardiera fusiformis, Labill. Nov. Holl. Pl. Sp. i, 65, t. 90 (1804).

Sollya heterophylla, Lindl. in Bot. Reg. xvii, t. 1466 (1831).

Although the priority of the epithet *fusiformis* was established by Briquet nearly thirty years ago, the name applied in the trade and much of the literature to this twining Australian Bluebell Creeper has remained *Sollya heterophylla*. However, its valid name, based on Jacques La Billardière's basonym, is *Sollya fusiformis*.

ROSACEÆ

Amelanchier arborea, (Michx. f.) Fern. in Rhodora, xliii, 563 (1941).

Mespilus canadensis, L., var. *β cordata*, Michx. Fl. Bor.-Amer. i, 291 (1803).

Mespilus arborea, Michx. f. Hist. Arb. Amer. Sept. iii, 68, t. 11 (1819).

Amelanchier canadensis, sensu Wiegand and Auth. not Medic. (1793), nor *Mespilus canadensis*, L. (1753).

This account of the name for one of the common spring-flowering native Shadbushes or Juneberries is based on data published by Fernald in 1941 (op. cit. 559–566). He pointed out that the tree or large shrub called *Amelanchier canadensis* by Wiegand (Rhodora, xiv, 150, 1912) is not *Mespilus canadensis*, L., the basonym of *A. canadensis* of Medicus, but is the plant described and figured by François Michaux as *Mespilus arborea*. In making this species Michaux was raising the plant named by his father André (*Mespilus canadensis* var. *β cordata*) to the rank of species.

Fernald pointed out further that Linnæus' *Mespilus canadensis* was a distinct species and that the name *Amelanchier canadensis*, (L.) Medic., must be retained for it. His studies showed it to be the species more currently known as *A. oblongifolia*, (Torr. & Gray) Roem., the latter name now becoming its synonym.

Inasmuch as both *Amelanchier arborea* (*A. canadensis*, Auth.) and *A. canadensis* (*A. oblongifolia*, Roem.) are in the trade, it seems desirable to indicate that *A. arborea* is separable from *A. canadensis* by leaf-apices usually short-acuminate (not obtuse), sepals reflexed, and the plants becoming small trees (not clump-forming shrubs).

The Pyrus-Malus puzzle (by L. H. Bailey)

Nomenclature of the pears and apples, whether in one genus or in two, is a lively topic of disagreement even to this day. In the pre-Linnæan period the two were kept distinct, as if the essential differences are indeed significant. In Dodoens 1583, Caspar Bauhin 1623, Tournefort 1700, the apple is Malus. Linnæus in 1753 adopted only Pyrus and accepted three species, the pear, the apple, the quince. Since that date botanists have differed on the nomenclature of pears and apples, although the standard encyclopedias of genera have adopted the Linnæan method, but the breakaways have been many and are yet important.

In his great work, the Gardener's Dictionary, Philip Miller had adopted both Pyrus and Malus in the earlier editions, before Linnæus. In the superlative Eighth Edition, 1768, he writes that "Dr. Linnæus has joined the Pear, Apple, and Quince together," and then continues: "But where

the fruit is admitted as a distinguishing character of the genus, the Apple should be separated from the Pear, this distinction being founded in nature; for these fruits will not take by budding or grafting upon each other though it be performed with the utmost care. Indeed I have sometimes succeeded so far, as to have the bud or graft of an Apple shoot when grafted on a Pear, but they soon decayed, notwithstanding all possible care was taken of them; therefore I shall beg leave to continue the separation of the Apple from the Pear, as hath been always practised by the botanists before his time."

The differences between apples and pears stated by Miller, from whom we date the genus Malus, are such as may be known to the gardener and may not appeal to the taxonomist; yet they indicate fundamental differences in the nature of the plants, and we should be able to discern separative morphological features as well, to be used as botanical guides. There is no doubt about the incompatibilities between pears and apples. I demonstrated that fact abundantly in my youth when time and again I tried to graft pears on apples and apples on pears (and always with failure) in the effort to find out what the world was like. We now know that pears and apples do not hybridize, and that their geographical ranges are largely unlike, none of the pears occurring in the western hemisphere where native crab-apples are abundant.

The horticultural side of the Pyrus-Malus problem must be taken into consideration by me, as by Miller, inasmuch as I work with nurserymen and gardeners as well as with the plants they grow. The nurserymen in this country universally use Malus for the apple species on their field labels and in their printed catalogues. Any action I may take in my publications will not change their practice, and if I refer everything to Pyrus there will be continual confusion. It is not a question of botanical principle but of a *modus operandi*. Nurserymen sense the differences between Pyrus species and Malus species. There is also with them no doubt about the separation of Cydonia, Chænomeles, Aronia, Sorbus.

We must not be too much influenced by exceptions that appear to bridge the chasm between the two genera Pyrus and Malus any more than in certain other genera; I must acknowledge the agreements within each of the two groups, in the pears and in the apples; and much more is involved than the separation of the domesticated pear from the domesticated apple. Perhaps we can undertake a new approach to the systematic problem.

We have reason to think that pears and apples have arisen as different lines of evolution. In the effort to define them botanically we have missed this concept and have tried to separate the two genera, Pyrus and Malus, on formal arbitrary marks that have little significance. In all my taxonomic writings until recently I have placed the species of pears and apples in the

one genus Pyrus, and have opposed separation of them, as in Manual of Cultivated Plants, 1924. In 1941 I adopted Pyrus and Malus as defendable separate genera, in Hortus Second. In that publication it would have been out of place to discuss the taxonomic reasons why. I now come to that question.

In preparation for this discussion I made special effort in the spring of 1947 to examine species of Pyrus and Malus in bloom in the Cornell plantations and the neighborhood. I have also studied all the 1128 sheets of these two genera in the Hortorium herbarium, covering the range of the species in each genus. I have read the recent discussions on the merits of the Pyrus-Malus controversy. I find that whether specimens of foliage, inflorescence, fruits are fresh or dried and whether plants are named or not named, I can always distinguish Pyrus and Malus. The marks are these: winter-buds, whether tomentose and nearly obtuse or glabrous and pointed; young growth tomentose or nearly glabrous (with certain exceptions); flower-clusters simple from the base or bearing a central thick column or stele with resulting branched effect; leaves with opaque mostly pubescent soft surface or hard and glossy surface, margins with acute or callous serratures; fruits markedly with or without stone-cells.

In handling hundreds of herbarium sheets my directest mark of separation is the structure of the flower-cluster, shown likewise in the habit of fruit-bearing, as seen in Fig. 1. In Malus the pedicels spring from the bottom of the cluster and are prevailingly long and slender, at least in fruit; the clusters look to be simple. In Pyrus there is a central stele or stalk commonly $\frac{3}{4}$ inch or more long, from which most or all the flowers arise; this structure I call the *pirostele* (Latin, *pirum*, pear; Greek-Latin

1. FLOWER-CLUSTERS OF PEAR AND APPLE showing difference in structure. At left, pear with central column or pirostele from which the pedicels arise; at right, apple with umbelloid structure.

stela, a column). Most of the flowers fall; but the pirostele remains and shows as a peduncle-like body to which the fruiting pedicel is attached.

Perhaps not all the distinguishing characters I have mentioned "hold," but they dominate.

While the existence of the pirostele is my most ready mark of separation for Pyrus (although the nature of foliage and fruit is the most important), there are partial exceptions, as for example in *Malus coronaria*. In this species and a few of its relatives there is often or usually a short branching stalk in the center of the flower-cluster; but it is a different structure from the pirostele of Pyrus and need not confuse an attentive eye.

I rejoice that I do not know of any invariable structures or "characters" in plants that are absolute and perfectly definable, for otherwise life might lose much of its savor.

Whatever the arrangement of genera in the Pomeæ, we shall probably not be able to arrive at an indubitable result. It may be more feasible and equally in accordance with biological truth to admit the exceptions and to allow for them in diagnoses and keys.

There is increasing tendency among botanists to separate Malus and Pyrus; as evidence of it I cite the beautiful plate, and its description, in Botanical Magazine, t. 9667 (1946) of *Malus hupehensis*.

LEGUMINOSÆ

Caragana sinica, (Buc'hoz) Rehd. in Journ. Arnold Arb. xxii, 576–577 (1941).

Robinia sinica, Buc'hoz, Pl. Nouv. Decouv. 24, t. 22 (1779).

Caragana Chamlagu, Lam. Encyc. i, 616 (1785).

Above is the essential synonymy of the plant generally known as *Caragana Chamlagu*. Since the plant originally described by Pierre Buc'hoz as *Robinia sinica* is the same species, the combination made by Rehder, *Caragana sinica*, must be used.

Vicia benghalensis, L. Sp. Pl. 736 (1753).

Vicia incana, Lam. Fl. Fr. ii, 560 (1778).

Vicia atropurpurea, Desf. Fl. Atlant. ii, 164 (1798).

Vicia Broteriana, Ser. in DC. Prodr. ii, 357 (1825).

Vicia trichocalyx, Moris, Stirp. Sard. Elench. fasc. 2, 7 (1827).

Vicia albicans, Lowe, in Trans. Camb. Phil. Soc. iv, 33 (1831).

Cracca atropurpurea, Gren. & Godr. Fl. Fr. i, 471 (1848).

The Purple Vetch is treated as *Vicia atropurpurea* in most American and much of the European literature, a name having its beginning in René

Desfontaine's Flora Atlantica. However, Linnæus in 1753 described a *Vicia benghalensis* and the two are the same species. This conspecific situation has been recognized by Wettstein, Fiori, Hayek, and other European botanists. It has not been taken up heretofore by most American authors. The above synonymy of the plant was accepted by Hegi (Ill. Fl. Mit.-Eur. iv (3), 1509, 1924).

Vigna cylindrica, (L.) Skeels, in U. S. Dept. Agr., Bur. Pl. Ind. Bull. no. 282, 32 (1913).

Phaseolus cylindricus, L. Amoen. Acad. v, 132 (1759).

Dolichos Catjang, Burm. f. Fl. Ind. 161 (1768).

Vigna Catjang, Walp. in Linnaea, xiii, 533 (1839).

The Catjang or Catjang Bean has been cultivated under the name *Vigna Catjang* for a considerable period. However, as pointed out by Skeels and also by Merrill (Interpret. Rumph. Herb. Amboinense, 284, 1917), the earliest available name for the plant is clearly *Vigna cylindrica*. Skeels cited Olaf Stickman, a student of Linnæus, as the author of *Phaseolus cylindricus* on the basis that it was first published in a thesis by Stickman. However it was the contention of Merrill (op. cit. 31–34) that although the thesis was Stickman's "the work was done under Linnæus's inspiration and direction, and the reductions of the Rumphian species must have been made largely, if not wholly, by him." For this reason, and the fact that the thesis as published by Linnæus in 1759 was considerably modified from Stickman's original of 1754, Merrill cited Linnæus as the authority for all new names in Stickman's dissertation.

The Lebbeck or Siris-Tree

It has been pointed out by E. L. Little (Amer. Midland Nat. xxx, 510, 1945) that since about 1844 the generic name of this commonly grown shade tree of subtropics and warm temperate regions has been misspelled. The genus was established by Durazzini who described it in 1772 (Mag. Toscan. iii (4), 11). This publication I have not seen and I quote from Little: "I have examined this very rare publication and find that the name was spelled uniformly (p. 10, 11, 13, and plate) Albizia, though Durazzini stated that the name honored 'Il sig. Cavalier Filippo degl' Albizzi.' In restoring this name, Bentham . . . stated that he preferred the spelling 'Albizzia.' "

Accepting Little's findings, we must adopt the original spelling and replace Albizzia with Albizia.

Not only has the generic name of this tree long been misspelled, but similar checking reveals that the species name also has been spelled in-

correctly. It originated with Linnæus who, treating the tree as a species of Mimosa, called it (Sp. Pl. 516, 1753) *Mimosa Lebbeck*. The same spelling of the binary name was used in the second edition of the work (1764) and in that edited by Willdenow (1805). It was first misspelled "Lebbek" by J. D. Hooker (in Hooker's Lond. Journ. Bot. iii, 84, 1844), subsequently by compilers of Index Kewensis, Index Londinensis, and such authors as Grisebach, Fawcett & Rendle, Sudworth, Bailey, and Rehder. The binary name was correctly spelled *Lebbeck* by Britton and Rose (N. Amer. Fl. xliii, 46, 1928). Because of these original spellings of both generic and specific names, the binomial of the Lebbeck-Tree is *Albizia Lebbeck*, (L.) Benth.

The name of the Lentil

The Lentil is one of the most commonly cultivated annual food and forage crops of the Mediterranean region and is grown to a lesser degree in North America for its edible seeds. It is known throughout the literature as *Lens esculenta*, a name given by Moench in 1794. Linnæus treated it earlier as *Ervum Lens*, but his genus Ervum (exclusive of this species) has been acknowledged to be a part of the genus Vicia. Moench is generally credited with having segregated the Lentil as a separate genus; however, Medicus in 1787 published in an obscure serial (cited below) his "Neue Methode die Pflanzen zu ordnen" and in it re-established Tourneforts' pre-Linnæan name of Lens for a monotypic genus embracing the one species which he called *Lens culinare*. Since the generic name Lens is feminine, the correct spelling of the binary name is *culinaris*. Medicus gave an adequate description of the genus and cited "*Ervum Lens* L." as a synonym. Despite the fact that it has not been taken up by compilers of Index Kewensis, the name *Lens culinaris* is legitimate and has priority over *L. esculenta*, Moench. Attention was directed to this situation by Hill's accounting (Bot. Mus. Leaflets Harvard Univ. x, 159, 1942), and photostats of the pertinent pages of Vorlesungen Kurpfalzische physikalalisch-oekonomische Gesellschaft, Heidelberg, were obtained by me from the University of Michigan in order to verify the legitimacy of Medicus' name. The full citation and synonymy of the name for the Lentil follows:

Lens culinaris, Medic, in Vorles. Kurpf. Phys.-oekon. Ges. ii, 361 (1787) [as *Lens culinare*].

Ervum Lens, L. Sp. Pl. ii, 738 (1753).

Lens esculenta, Moench, Meth. Pl. 131 (1794).

Nomenclature of the Soybean

Three rather closely related bean plants are involved in this problem.

One is known universally as Mung; it is treated by some as a species (*Phaseolus radiatus*) and by others as a variety (*P. Mungo* var. *radiatus*). The second is grown as Urd, or in twining forms as Tikari; it is *Phaseolus Mungo*. The third is the Soybean, considered to be *Glycine Max* and this name is used in Hortus Second. No change of name accompanies the treatment of the plant in the revised Manual. However, since two papers have appeared in the last decade presenting two names for the plant and without detailed analyses of the situation, and since *Glycine Soja* is adopted in Standardized Plant Names, Edition 2, it seems proper here to review the case.

In 1939, A. F. Hill (Bot. Mus. Leaflets Harvard Univ. vii, 107) stated the valid name of the Soybean to be *Glycine Soja*. From a cursory examination of the limited synonymy given by him (unaccompanied by explanatory notes) it would appear that he was nomenclatorially correct in his conclusions. The conclusions appear to have been based, however, on inadequate information of the types involved. Recently P. L. Ricker and W. J. Morse published a brief account (without reference to Hill's conclusions) to support their contentions that the correct name for the Soybean is *Glycine Max* (Journ. Amer. Soc. Agron. xl, 190–191, 1948). Concurrence is here held with the findings of Ricker and Morse as to the correct name of the plant; the bases for concurrence are other than those presented by them.

Recent studies date back to 1914 when C. V. Piper published the results of his investigations (Journ. Amer. Soc. Agron. vi, 75–84, 1914), concluding the valid name to be *Soja Max*, (L.) Piper. Piper recounted the pre-Linnæan and Linnæan nomenclatorial history of the Soybean and quoted at length extensive data received on the subject from the late Sir David Prain, once eminent Regius Keeper of the Edinburgh Botanical Garden. The Soybean was again the subject of a short note, and new combination, by E. D. Merrill in 1917 as cited below. The nomenclatorial situation as concerns the correct generic name for the Soybean has been well presented by Merrill (1917) and by Ricker and Morse (1948). It is now universally accepted to be Glycine.

The record of reviews on the binomial of the Soybean is confusing. The starting point of our nomenclature of seed plants is Linnæus' Species Plantarum published in 1753, although earlier works cited by Linnæus are important since they often provide valuable information to augment his brief diagnoses. In Species Plantarum he named and described, among others, two different bean plants; one he called *Phaseolus Max*, the other *Dolichos Soja*. It has been established that, at the time these descriptions and names were prepared, Linnæus possessed a specimen of his *Phaseolus Max*. From data on the label accompanying it we learn that he received the specimen some time prior to 1738 from the collections of George Clif-

ford of Holland who had grown it from seed reputed to have come from Virginia. However, Linnæus knew, from earlier study of Indian collections of Hermann, that the plant was not an indigen of the New World and gave for its nativity "Habitat in India." The Clifford specimen is reported to be extant in the Linnæan Herbarium in London.

Confusion may have been injected into the understanding of the nomenclature of the plant Linnæus named *Dolichos Soja* by Piper's paper of 1914, for in it Prain is quoted to have stated, "*Dolichos Soja* though written about by Linnæus in 1753 was not seen by him until he grew specimens of it in Hort. Upsal., which specimens he recorded the existence of, for the first time, in 1767." In his original diagnosis Linnæus cited as a supplementary reference "Fl. zeyl. 534." This refers to the Flora Zeylanica published by Linnæus in 1747, a work made possible through his receipt of five tomes from a Danish pharmacist, August Gunther. The first three of these volumes cont ained pressed dried plant specimens from the Orient, the fourth an admixture of specimens from South Africa and the Orient, while the fifth comprised original drawings of many of these same plants. Linnæus perceived quickly that all were the collections and drawings of a Paul Hermann, prepared during his travels in 1670–77 in the areas concerned. The flora written by Linnæus and based on these collections is sometimes referred to as Hermann's Flora Zeylanica. In it (page 222) Linnæus described a Dolichos (no. 534) based on one of the plants collected by Hermann. The description is identical with that published five years later by Linnæus as *Dolichos Soja* in Species Plantarum. According to Savage's Catalogue of the Linnæan Herbarium (1945) a specimen labelled *Dolichos Soja* in Linnæus' hand is in his herbarium. There seems no doubt that Linnæus knew the plant and had seen a specimen of it prior to 1753. Evidence for Prain's statement to the contrary is not available, whereas reliable data refuting it is in the record.

In 1767 Linnæus published two works; his Mantissa Plantarum, which in effect was a supplement to the Species Plantarum, Edition 2 (1764), and a Systema Naturæ, Edition 2. In the Mantissa (page 101) he published as new the name *Phaseolus Mungo*. In his Systema (ii, 482) he accounted for *Phaseolus Max* and *P. Mungo* (citing the Mantissa reference under the latter). Furthermore he continued to recognize *Dolichos Soja* as a valid and distinct entity (page 483). No Linnæan specimen is now known to exist for *P. Mungo*, but we know it to be the Urd bean of India. For reasons not clear to me, and despite the evidence cited above, Prain is quoted by Piper to have asked rhetorically, "why, in 1753, did Linnæus use *Max* in preference to *Mungo* and why in 1767 did he drop *Max* and use *Mungo* instead?" I find no evidence that Linnæus ever "dropped" the epithet *Max* or treated the name as a synonym of *Phaseolus Mungo* or that he considered the two

to be conspecific. This has little pertinence to the nomenclature of the Soybean and is presented here only in an attempt to clarify the record and to show that Linnæus did not abandon the name *Phaseolus Max* for the Soybean as is alleged.

Linnæus' specimens comprising the types of *Phaseolus Max* and *Dolichos Soja* are of cultivated plants (Hermann's collection of the latter is credited by Linnæus, 1747, to be "Habitat in zeylona culta"). As Piper pointed out, Moench in 1794 was the first to differentiate the wild indigenous prototype of the Soybean from the cultivated counterpart; he named the indigen *Soja hispida*, a name later (1873) transferred by Maximowicz as *Glycine hispida*. However, prior to Maximowicz's action, Siebold and Zuccarini described this same wild form as *Glycine Soja*, indicating that it was not based on the type of *Dolichos Soja* of Linnæus. In creating their *Glycine Soja*, Siebold and Zuccarini also considered *Soja hispida* to be distinct generically as well as specifically, and treated *Dolichos Soja*, L., as a synonym of it. For several decades competent botanists who have studied the types of these plants have agreed that all of these names (*Phaseolus Max*, *Dolichos Soja*, *Glycine Soja*, and *Soja hispida*) as here identified, are of one and the same species. In each instance this accord is based on interpretation, on an individual's opinion; the resultant unity must be recognized as only a current unity of opinion. In the case of *Dolichos Soja*, L., and *Glycine Soja*, Sieb. & Zucc., two different type specimens of two widely separated geographic origins are involved, for Linnæus' is a garden plant and the other an indigen. Opinion now in harmony may later be in disharmony and, while we now accept the two elements as being conspecific, it is possible that they may yet be proved specifically distinct. Should this contingency arise, the name *Glycine Soja* (based as it is on Siebold and Zuccarini's indigenous specimen) could not be used for the wild plant (see Article 61 of the Rules) since it is antedated by *Glycine hispida*, (Moench) Maxim., nor could it be employed for the cultivated specimen since its name is *Glycine Max*, (L.) Merr.

Piper was the first to combine *Dolichos Soja* and *Phaseolus Max*. Both names were originally published simultaneously in the same book (Species Plantarum) and he chose the epithet *Max* because it had page priority over *Soja*, a choice required under the Rochester Code of Nomenclature, but not required then or now under the International Code of Nomenclature. However, Article 56 of the present Rules does direct that the author who first unites two species has the right to choose which name shall be used and that this choice, if the resultant name be legitimate, becomes final and must be followed. The valid name and synonomy for the Soybean is as follows:

Glycine Max, (L.) Merr. Interpret. Rumph. Herb. Amboinense, 274 (1917).

Phaseolus Max, L. Sp. Pl. 725 (1753).

Dolichos Soja, L. op. cit. 727.

Soja hispida, Moench. Meth. Pl. i, 153 (1794).

Glycine Soja, Sieb. & Zucc. in Abh. Akad. Muench. iv, Abt. 2, 119 (1845).

Glycine ussuriensis, Regel & Maack, Teut. Fl. Ussur. 50 (1861).

Glycine hispida, Maxim. in Bull. Acad. Sci. Petersb. xviii, 398 (1873).

Soja Max, Piper, in Journ. Amer. Soc. Agron. vi, 84 (1914).

RUTACEÆ

Citrus reticulata, Blanco, Fl. Filip. Ed. 1, 610 (1837).

Citrus nobilis, Andr. Bot. Rep. ix, t. 608 (1809), not Lour. (1790).

Citrus deliciosa, Ten. Ind. Sem. Hort. Bot. Naples, 9 (1840).

The Mandarin Orange has long been known as *Citrus nobilis*. Studies by W. T. Swingle, who presented the case in detail in Webber & Batchelor, The Citrus Industry, ii, 413–414, 1943, revealed that the name *Citrus nobilis* as applied to this plant is a later homonym and, being illegitimate, must be replaced by the next available name, *C. reticulata*.

Murraya paniculata, (L.) Jack, in Malay. Misc. i, 31 (1820).

Chalcas paniculata, L. Mant. 68 (1767).

Chalcas Camuneng, Burm. f. Fl. Ind. 104 (1768).

Murræa exotica, L. Mant. Pl. Alt. ii, 554 (1771).

Murraya exotica, L. op. cit. 563 (1771).

Chalcas exotica, Millsp. in Field Columb. Mus. Bot. i, 25 (1895).

The Orange-Jessamine, or Murraya, is grown extensively in Florida and California as an ornamental evergreen shrub, producing an abundance of white fragrant flowers followed by small red fruits. It is known commonly in the trade as *Murræa exotica*. The generic name Murraya has been conserved by the International Rules over that of *Murræa*. By application of the principle of priority, its name is *Murraya paniculata*.

EUPHORBIACEÆ

Euphorbia Milii, Ch. des Moulins, in Bull. Hist. Nat. Soc. Linn. Bord. i, 27–30, pl. 1 (1826).

Euphorbia splendens, Bojer ex Hook. in Bot. Mag. t. 2902 (1829).

The spiny almost cactaceous clambering shrub commonly cultivated as the Crown-of-Thorns has been known for over a century as *Euphorbia splendens*. A native of Madagascar, and no kin of the crown-of-thorns of the Bible, this plant was named *E. splendens* by Wenzel Bojer and published, with an accompanying color plate, by J. D. Hooker in Curtis' Botanical Magazine in 1829. Because of the wide circulation of this serial among horticulturists and botanists, and perhaps, too, because of the confidence placed in the writings of Hooker, this name has become entrenched in botanical and horticultural literature.

As pointed out by Croizat (Journ. Arnold Arb. xxi, 506–507, 1940), a name and most adequate description, together with an illustration, was published three years earlier (1826) for this species by Charles des Moulins. The earlier name is *Euphorbia Milii* and is the valid one for the species. It is of interest to note that Hooker's *E. splendens* was recognized by Desfontaines to be invalid the same year it was published, for he treated it, in a catalogue of the plants in the Paris botanic garden, as a synonym of *E. Milii*. As Croizat succinctly stated, "nothing can be done to rescue Bojer's well known binomial (*Euphorbia splendens*) from synonymy."

BALSAMINACEÆ

Impatiens glandulifera, Royle, Ill. Bot. Himal. t. 28, fig. 2 (Mar. 1834); op. cit. 151 (Jan. 1835); not *I. glandulifera*, Arn. in Comp. Bot. Mag. i, 322 (1836) which is *I. taprobanica*, Hiern.

Impatiens Roylei, Walp. Repert. i, 475 (1832).

In 1933 T. A. Sprague, now retired as Keeper of the Herbarium at Kew, published "The Dates of Publication of Royle's Illustrations" (Kew Bull. 378–390) wherein were given dates of new species figured by Royle. There he pointed out that Royle's name *Impatiens glandulifera* antedated Arnott's identical binomial for another species and that the name *Impatiens Roylei* "substituted by Walpers for *I. glandulifera* was accordingly superfluous and must be rejected." American horticulturists and botanists seemingly were unaware of this observation by Sprague until attention was directed to it by Weatherby (Rhodora, xlviii, 412–414, 1946) who stated that "since the title page of Royle's Illustrations bears the date 1839 and that of the first volume of the Companion to the Botanical Magazine, in which Arnott's species was published, 1835, Walpers may well have thought he was observing strict priority [in renaming the plant *I. Roylei*]." Confirmation of the publication dates of Royle's Illustrations was made by W. T. Stearn (Journ. Arnold Arb. xxiv, 484–487, 1943) on the basis of a copy of the work still in the original fascicles.

The typical form of *Impatiens glandulifera* has flowers uniformly dark

magenta-red. There are other color forms, one having pale pink corollas with brownish or reddish spots on the sac and a yellowish spur; it is forma *pallidiflora,* (Hook.) Weatherby.

RHAMNACEÆ

In most of the literature the Jujube genus is spelled "Zizyphus." However, T. A. Sprague (Kew Bull. 1929, 51–52) pointed out that "Miller chose the time-honoured spelling *Ziziphus*, and his choice is final under the Rules. There can be no question of an orthographic error on his part. The spelling 'zizyphus' appears to be more correct philologically . . . but it is not permissable under the Rules to make orthographic corrections based *solely* on philological grounds (vide Kew Bull. 1928, 340)."

BEGONIACEÆ

Begonia Haageana, W. Wats. in Gard. Chron. ser. 3, ii, 49 (July 1888).

Begonia Scharffii, Hook. f. in Bot. Mag. t. 7028 (Dec. 1888).

This pink-flowered Brazilian Begonia is allied to *B. echinosepala* and popular as a glasshouse subject in the North. It has been treated variously as *B. Haageana* and *B. Scharffii* by botanists and horticulturists.

In clarifying its nomenclatorial status, it should be pointed out that it was first recorded in July 1888 by a brief but adequate description based on material exhibited at Kew under the name *Begonia Haageana.* This was in Volume ii of Gardener's Chronicle, not Volume i, as cited in Index Kewensis. In the issue of December 15th of that same volume (page 695), the statement is made that the plant exhibited in July as *B. Haageana* was grown from material received from the firm of Messrs. Haage & Schmidt, of Erfurt, and that at the request of this firm the name was deliberately changed by Sir Joseph Hooker who redescribed and figured it in Curtis' Botanical Magazine under the new name of *Begonia Scharffii.*

Clearly then, this is a case of simple priority, since Watson's name was published first and that of Hooker was superfluous when made. Part of the confusion is attributable to the fact that during the interval between the time the two names were published (June and December) a large number of cuttings of the plant were distributed from Kew under the name *Begonia Haageana* and the latter quickly became known and established in the trade. Another reason is that botanists, following the entry in Index Kewensis, failed to find any accounting of the plant in Volume i of Gardener's Chronicle, and treated the reference as an error accepting that in Volume vi (1889) as the source of earliest description. When this latter source was treated as the first date for the name, it obviously but erroneously gave priority precedence to Hooker's *B. Scharffii* (December 1888).

LYTHRACEÆ

Cuphea ignea, A. DC. in Fl. des Serres, ser. i, v, 500 (1849).

Cuphea platycentra, Lem. in Fl. des Serres, ii, t. 180 (1846), not Benth. (1839).

The name *Cuphea platycentra,* as commonly employed for the garden annual known as the Cigar-Flower, is a later homonym, having been used earlier by Bentham for a different species. Because of its illegitimacy, the next available name must be adopted and the plant becomes *Cuphea ignea.*

MYRTACEÆ

Callistemon citrinus, (Curt.) Stapf, in Bot. Mag. t. 9050 (1924).

Metrosideros citrina, Curt. in Bot. Mag. t. 260 (1794).

Metrosideros lanceolata, Smith, in Trans. Linn. Soc. (Lond.) iii, 272 (1797).

Metrosideros lophantha, Vent. Jardin de Cels, t. 69 (1800).

Metrosideros semperflorens, Lodd. Bot. Cab. vi, t. 523 (1821).

Callistemon scaber, Lodd. Bot. Cab. xiii, t. 1288 (1827).

Callistemon lanceolatus, DC. Prodr. iii, 223 (1828).

Above is the valid name and synonymy of one of the Australian red Bottle-Brushes commonly grown in southern California gardens and in conservatories. Actually the cultivated shrub is more likely to be *C. citrinus* var. *splendens,* Stapf, since the typical element of the species is reported to be much less showy and its inflorescence remotely and fewer-flowered. For many decades this plant has been grown and described as *Callistemon lanceolatus.* The late Dr. Otto Stapf of Kew demonstrated that the plant was described and figured as *Metrosideros citrina* in 1794 and that Sir James Smith three years later changed it without cause to *M. lanceolata.* Curtis named the tree *citrina* in allusion to the aromatic scent emitted by the crushed leaves.

Eucalyptus camaldulensis, Dehnhardt, Cat. Pl. Hort. Camald. Ed. 2, 20 (1832).

Eucalyptus rostrata, Schlecht. in Linnaea, xx, 655 (1847), not Cav. (1797).

Eucalyptus longirostris, F. Muell. ex Miq. in Nederl. Kruidk. Arch. iv, 125 (1859).

This change in name of the Murray Red Gum from *Eucalyptus rostrata* to *E. camaldulensis* is taken from Hill (Bot. Mus. Leaflets Harvard Univ. x, 155, 1942) based on the entry cited in Dehnhardt's catalogue of the

plants in the garden of Camaldua. I have not seen Dehnhardt's catalogue. A. K. Cameron of Melbourne has taken up Dehnhardt's name (Victorian Nat. lxiii, 40–44, 1946) and indicated there was no cause to doubt that plants represented by the two binomials are conspecific. Cameron cited W. F. Blakeley (Key to the Species of Eucalyptus, 134, 1934) as the first to recognize that *E. rostrata*, Schlecht., was a later homonym and for adopting the older name.

Pimenta racemosa, (Mill.) J. W. Moore, in Bull. Bernice P. Bishop Mus. cii, 33 (1933).

Myrtus caryophyllata, Jacq. Obs. Bot. i, 1 (1767), not L. (1753).

Caryophyllus racemosus, Mill. Gard. Dict. Ed. 8, no. 5 (1768).

Myrtus acris, Swartz, Prodr. Fl. Ind. Occ. ii, 79 (1788), excl. var. *β*.

Myrcia acris, DC. Prodr. iii, 243 (1828).

Pimenta acris, Kostel. Allg. Med.-Pharm. Fl. iv, 1526 (1835).

Amomis acris, Berg, Handb. Pharm. Bot. Ed. 1, iii, 339 (1835).

Amomis caryophyllata, Krug & Urban, in Engler Bot. Jahrb. xix, 573 (1894).

This lengthy synonymy of the Bay-Rum-Tree of the West Indies, known under a galaxy of names, is now believed to be resolved with assurance of stability as *Pimenta racemosa*. The situation was discussed by Moore in his treatment of Raiatean plants and accepted by Hill (Bot. Mus. Leaflets Harvard Univ. x, 164–165, May 1942) and Fosberg (Amer. Midland Nat. xxvii, 761–762, May 1942). Fosberg also reduced *Amomis grisea*, (Kaiersk.) Britt., to *P. racemosa* var. *grisea*, (Kaiersk.) Fosberg.

Syzygium aromaticum, (L.) Merr. & L. M. Perry, in Mem. Amer. Acad. Arts & Sci. xviii, 196 (1939).

Caryophyllus aromaticus, L. Sp. Pl. 735 (1753).

Eugenia caryophyllata, Thunb. Diss. 1 (1788).

Myrtus Caryophyllus, Spreng. Syst. ii, 485 (1825).

Eugenia aromatica, Baill. Hist. Pl. vi, 311, 345 (1877), not Berg (1854).

Merrill and Perry (Journ. Arnold Arb. xix, 99–101, 1938) recognized the genus Syzygium of Gaertner as taxonomically valid. They included in it the former genus Jambosa of De Candolle and most of the Old World species of Eugenia, L., *sensu latiore*, restricting to Eugenia, on morphological grounds, the large group of tropical American species and a few representative of the Old World tropics.

The above synonymy is for the Clove-Tree, native of the Moluccas but cultivated throughout much of the tropics and subtropics. Taxonomically, it is a Syzygium and by the application of the rule of priority its name is *Syzygium aromaticum*.

Syzygium Jambos, (L.) Alston, in Tremen, Handb. Fl. Ceyl. vi (Suppl.), 115 (1931).

Eugenia Jambos, L. Sp. Pl. 470 (1753).

Myrtus Jambos, HBK. Nov. Gen. et Sp. vi, 144 (1823).

Jambosa vulgaris, DC. Prodr. iii, 286 (1828).

Jambosa Jambos, Millsp. in Field. Columb. Mus. Bot. ii, 80 (1900).

The Rose-Apple or Jambos, native of Indo-Malaysia, is naturalized or cultivated throughout the tropics and subtropics.

Acmena Smithii, (Poir.) Merr. & L. M. Perry, in Journ. Arnold Arb. xix, 16 (1938).

Eugenia elliptica, Smith, in Trans. Linn. Soc. (Lond.) iii, 281 (1797), not Lam. (1778).

Eugenia Smithii, Poir. Encyc. Suppl. iii, 126 (1813).

Myrtus Smithii, Spreng. Syst. ii, 487 (1825).

Syzygium Smithii, Niedz. in Engler & Prantl, Nat. Pflanzenfam. iii (7), 85 (1893).

This Australian tree is grown as an ornamental in southern California, usually as *Eugenia Smithii*, and now should be treated as *Acmena Smithii*.

Myrciaria cauliflora, (DC) Berg, in Mart. Fl. Bras. xiv (1), 361 (1857–59).

Eugenia cauliflora, DC. Prodr. iii, 273 (1828).

Jaboticaba or Brazilian Grape-Tree is now grown in southern Florida for its delectable fruit. It is generally accepted as belonging to the genus Myrciaria rather than a true Eugenia.

ONAGRACEÆ

Ludwigia natans, Ell. Sketch Bot. S. C. & Ga. i, 581 (1821).

Ludwigia Mulerttii, Mulertt, in Aquarium, iii, 43, 64 (1888?); Bailey, Cyclo. Amer. Hort. 948 (1900).

Material cultivated as *Ludwigia Mulerttii* and collected from stock in the trade at various intervals between 1911 and 1942 has been determined by P. A. Munz to be either typical *Ludwigia natans* or approaching its var. *stipitata*, Fern. & Griscom.

Œnothera erythrosepala, Borb. in Magyar Bot. Lapok, ii, 245 (1903).

Onagra erythrosepala, Borb. in A. Kert. 202 (1902); Magyar Bot. Lapok, ii, 245 (1903).

Œnothera Lamarckiana, DeVries (1900), not Ser. (1828).

The writer is indebted to P. A. Munz for furnishing the nomenclatorial data for the above disposition of DeVries' later homonym of *Œ. Lamarckiana.* It is expected that Munz will take up the taxonomic discussion of the case independently under his own authorship.

HALORAGACEÆ

Myriophyllum brasiliense, Cambess. in St. Hil. Fl. Bras. Merid. ii, 252 (1829).

Myriophyllum proserpinacoides, Gill. ex Hook. & Arn. in Bot. Misc. iii, 313 (1833).

The Parrots-Feather, a tropical aquatic plant cultivated in pools and aquaria, is commonly known in the trade as *Myriophyllum proserpinacoides.* Inasmuch as the latter is reported to be conspecific with Cambessedes' earlier name, the rule of priority leaves no choice but to accept for it the binomial *Myriophyllum brasiliense.*

UMBELLIFERÆ

Eryngium yuccifolium, Michx. Fl. Bor.-Amer. i 164 (1803).

Eryngium aquaticum, Auth. and L. Sp. Pl. Ed. 2, 336 (1762), in part, not L. (1753).

In much of the literature the name *Eryngium yuccifolium* (often, but not originally, spelled *yuccæfolium*) is treated as a synonym of *E. aquaticum.* Two species are concerned, as first pointed out by Britten & Baker (Journ. Bot. xxxviii, 241–243, 1900), later adopted in Gray's Manual (Ed. 7) and accepted by Mathias and Constance in their monographs. Linnæus (1753) described one of these under the name *E. aquaticum,* a species native along the Atlantic coast from New Jersey to Florida. It is not the plant known to be cultivated as *E. aquaticum,* for that is properly *E. yuccifolium,* Michx., a very different species. *E. yuccifolium* is native from Connecticut to Florida and west to Minnesota and Texas. The two species are readily separated by their leaf-venation; parallel in *E. yuccifolium* (cultivated) and netted or reticulate in *E. aquaticum* (not known to be cultivated).

ERICACEÆ

Rhododendron flavum, (Hoffmgg.) Don, Gen. Hist. Dichlam. Pl. iii, 847 (1834).

Azalea flava, Hoffmgg. Verz. Pflanzenkult. Nachtr. ii, 62 (1826).

Rhododendron luteum, Sweet, Hort. Brit. Ed. 2, 343 (1830) and Auth. not *Azalea lutea*, L. (1753).

Above is the essential synonymy of the plant known in the trade as *Rhododendron luteum* as adopted from Rehder (Journ. Arnold Arb. xxvi, 73, 1945). From it one learns that the name in the trade is displaced, on grounds of priority, by *R. flavum*. As Rehder has pointed out, *R. luteum* was applied by Camillo Schneider to our native *R. calendulaceum* also, an application that was invalid since Sweet's binomial has priority.

Erica terminalis, Salisb. Prodr. 296 (1796).

Erica multicaulis, Salisb. in Trans. Linn. Soc. (Lond.) vi, 369 (1802).

Erica ramulosa, Viv. in Ann. Bot. i (2), 169 (1804).

Erica stricta, Andr. Heathery, ii, t. 92 (1805), not Willd. (1794).

Erica corsica, DC. Fl. Fr. iii, 677 (1805).

The above is the currently accepted name and synonymy of the plant well known in the trade as *Erica stricta*. The treatment by Fiori (Nuova Fl. Anal. d'Ital. ii, 200, 1926) has been accepted. The nomenclatorial situation is one of name priority.

The identity of Erica melanthera

Among the Ericas popular as florists subjects in the cooler parts of North America and grown outdoors as a shrub in California, is a pale pink- or white-flowered species known universally in the trade as *E. melanthera*.

It has been pointed out by B. L. Burtt of Kew that this species is properly *E. canaliculata* (Gard. Chron. ci, 221, 1937). The confusion in names began in 1824 when Loddiges (Bot. Cab. ix, t. 867) published an illustration of *E. canaliculata* under the name *E. melanthera*. Other horticulturists and botanists followed Loddiges and it was not until 1905 that the error was corrected by Guthrie and Bolus (Fl. Cap. iv [I], 304–307) who recognized that *E. melanthera* of Linnæus was a species quite distinct from *E. melanthera* of Loddiges and that the latter was properly *E. canaliculata*, Andr.

The true *Erica melanthera* of Linnæus is reported by Burtt to have been cultivated in the British Isles as late as 1838 but there is no record of it as a garden subject since then. It is not known to have been cultivated in this country. All herbarium specimens of domestically cultivated material seen by me under that name are *Erica canaliculata*, Andr. Indigenous material of both species is in the herbarium of the Bailey Hortorium. The two species have been ably contrasted and illustrated by Burtt (l.c.).

PRIMULACEÆ

A readily recognized species of Primula belonging to the Section Mus-

carioides and characterized in part by its bright crimson calyx and the dense spike of bluish-violet flowers whose corolla-lobes are acutish or at least never emarginate, has been known as *P. Littoniana.*

The nomenclature of the plant has been confused. It was first named *Primula Vialii* by Abbé Delavay, who sent it from China by his colleague Père Vial to Franchet. The latter prepared a description and published it with Delavay's name in 1891. However, as pointed out by Smith and Fletcher (Trans. Bot. Soc. Edinb. xxxiii, 290–292, 1942), Franchet included in his descrptions and citations another species (*P. Watsonii*). Pax, in his monograph iof the genus (1905), added to the confusion by unwittingly mixing together under the name *P. Vialii* characters of four species (none of which was that species). In 1906 George Forrest rediscovered Delavay's plant, but was so confused by the descriptions of Franchet and Pax that, not recognizing it as being *P. Vialii*, he described it as new, naming it *P. Littoniana.* It is described and figured under this later name in Botanical Magazine (t. 8341). Clarification was possible through acquisition of a collection of Delavay's cotypes containing a specimen ("Moiety") of *P. Vialii* by Sir William Wright Smith of Edinburgh. For these reasons Primula specialists may note that the name *P. Vialii*, Delavay, now replaces *P. Littoniana*, Forrest.

Primula yargongensis, Petitmengin, in Bull. Herb. Boiss. viii, 366 (1908).

Primula Wardii, Balf. f. in Notes Roy. Bot. Gard. Edinb. ix, 58 (1915).

Primula involucrata var. *Wardii*, Pax & K. Hoffm. in Limpricht Bot. Reisen China, 457 (1922).

A non-farinose Primula, but belonging to the Farinosa section of the genus, has been known in cultivation as *P. Wardii* for thirty-five years. It was so named by Sir Isaac Baily Balfour of Edinburgh in 1915 based on collections by Ward in western China. However, as shown by Sir William Wright Smith and H. R. Fletcher in their current monographic studies of the genus (The Genus Primula: section Farinosæ, in Trans. Roy. Soc. Edinb. lxi, 56–57, 1943), this same species had been collected on several occasions from 1890 to 1903 and was named and described in 1908 as *Primula yargongensis* by Petitmengin in Paris. In 1922 Pax and Hoffmann restudied the plant and concluded it to be only a variety of the admittedly closely related *P. involucrata*, an interpretation accepted also by Stapf (Bot. Mag. t. 9149, 1928). However, the presence of cytological differences, together with those of corolla color, influenced Smith and Fletcher to treat it as specifically distinct.

Primula polyneura, Franch. in Morot, Journ. de Bot. ix, 448 (1895).

Primula Veitchii, Duthie, in Gard. Chron. xxxvii, 344 (1905).

Primula cortusoides var. *lichiangensis*, Forrest, in Notes Roy. Bot. Gard. Edinb. iv, 217 (1905).

Primula lichiangensis, Forrest, in Gard. Chron. l, 473 (1911).

Primula polyneura ssp. *Veitchii*, W. W. Smith & Forrest, in Notes Roy. Bot. Gard. Edinb. xvi, 19 (1928).

Primula polyneura ssp. *lichiangensis*, W. W. Smith & Forrest, l. c.

Primula polyneura is from western China and belongs to the section Cortusoides of which Sir William Wright Smith and H. R. Fletcher published a monograph (Trans. Bot. Soc. Edinb. xxxiv, 55–115, 1944). According to them *P. polyneura* is a species of a "high degree of variability in size and vigor and particularly in the amount of pubescence or of woolly coating on the underside of the leaves."

The plant grown in gardens as *P. Veitchii* had its origin in material collected in 1904 by E. H. Wilson from the mountains of western Szechwan and type material studied by Smith and Fletcher was considered by them to be *P. polyneura*. In this regard they stated (op. cit. 75), "it is safe to say that the description [of *P. Veitchii*] would not have been published had material of *P. polyneura* been available for comparison." They also rejected as incorrect Duthie's observation that the capsule of his *P. Veitchii* was twice as long as the calyx and that the calyx-tube was ovate; either observation, had it been correct, might have served to separate *P. Veitchii* from *P. polyneura*.

The original material of *P. lichiangensis* was collected by George Forrest in the Lichiang Range of Yunnan and was at first believed distinct because of the high degree of leaf pubescence in the early-collected individuals, a distinction found by Smith and Fletcher to be wholly unreliable. Since the differences by which these three elements were once considered to be distinct species either do not exist or are merely manifestations of individual variations, Smith and Fletcher combined them under the oldest binary name, *P. polyneura*.

Dodecatheon pulchellum, (Raf.) Merr. in Journ. Arnold Arb. xxix, 212 (1948).

Exinia pulchella, Raf. Aut. Bot. 185 (1840).

Dodecatheon integrifolium, sensu Hook. in Bot. Mag. t. 3622 (1837), not Michx. (1803).

Dodecatheon Meadia, L., var. *pauciflorum*, Durand, in Journ. Acad. Nat. Sci. Phila. II, iii, 95 (1855).

Dodecatheon pauciflorum, Greene, in Pittonia, ii, 72 (1890).

Dodecatheon vulgare, (Hook.) Piper, Fl. of State of Wash., Contr. U. S. Nat. Herb. xi, 445 (1906).

The western montane Dodecatheon, well known as *D. pauciflorum*, was first so named by E. L. Greene who raised Durand's *D. Meadia* var. *pauciflorum* to species rank. However, as pointed out by E. D. Merrill, the plant was named earlier by Rafinesque when in 1840 he gave it the binomial *Exinia pulchella*. Rafinesque probably never saw the plant in dried collections, the wild, or gardens, but, as was his not infrequent practice, he based his opinions on an illustration by Hooker in the Botanical Magazine where Hooker had erroneously identified it as Michaux's *D. integrifolium*. Rafinesque, individualist that he was, considered it to represent a new genus, and republished it with his new name.

SAPOTACEÆ

The Sapodilla and the Sapote

It is doubtful whether any two economic plants have been involved in more complicated nomenclatorial snarls and subjected to as many different opinions as have the Sapote and the Sapodilla. Fortunately, most recent specialists are in accord as to the scientific name of each, a situation not manifest among authors of general treatises accounting for these plants in contemporary botanical and horticultural literature.

Two tropical plants with edible fruits are involved in this discussion; the Sapodilla with solitary flowers having petaloid staminodia and a depressed-globose to ovoid fruit, and the Sapote with clustered flowers having filiform staminodia and an oblong to ellipsoidal fruit. The two plants are now almost universally accepted as generically distinct (for a view to the contrary, see Gilly, in Trop. Woods lxxiii, 1943 and for a lucid review and study of generic problems involved consult Little, in Rhodora, xlix, 289–293, 1947).

Linnæus in 1753 treated the two entities as representing a single species, *Achras Zapota*. There is no Linnæan specimen (as of 1753 or 1762) for this entry (although two specimens labelled *Achras Sapota* are believed to have been in the Linnæan herbarium since 1767) and because of the very inadequate diagnosis one must resort in part to the information available from the seven references cited by Linnæus. Of them, only that by Plumier provided enough information from which to learn the identity of the genus Linnæus named Achras. Plumier provided a plate (Nova Pl. Amer. Gen. 43, 1703) illustrating his plant which has been identified by Merrill and others as the Sapodilla, although Gilly (1943) doubted that the flowers and fruits depicted were of the same entity. In his description

Plumier recounted what Merrill concluded were two fruit forms of Sapodilla and Linnæus apparently misinterpreted one of these to be Sapote. The other six references cited at this time by Linnæus do not apply to the Sapodilla and are to be discounted. It has been contended by some, and most recently by Gilly, that since two elements appear under Linnæus' *Achras Zapota*, the name be disposed of as a *nomen ambigum et confusum* and a new name given the plant. By most botanists this has been deemed illogical and unnecessary since it is clear that the genus was based by Linnæus on Sapodilla and, as Merrill has pointed out, by any reasonable interpretation of Plumier's material the genus would be treated as representing two forms of one species rather than two species of different genera.

In the second edition of his Species Plantarum (1762), Linnæus corrected his earlier inclusion of the two plants in one species by establishing a second species, *Achras mammosa*, based again not on specimens but on references to earlier literature. In doing so he considered Plumier's two fruit forms as representing these two species.

Two years earlier, in 1760, Jacquin described the Sapote as a new entity and erroneously thought it to be a Sideroxylon, naming it *S. Sapota*. As pointed out by Merrill (Enum. Philip. Plants, iii, 284, 1923, and in later correspondence to L. H. Bailey and W. A. Dayton, wherein views in accord with this present recounting were expressed), Jacquin made the name "independently of and without reference to *Achras sapota* [Zapota] Linn. and represents this species and not the sapodilla. The reference [by Jacquin] to *Malus persica maxima* Sloane Voy. Jam. 2 (1725) 124, t. 218, definitely fixes its status." Confusion was further injected over this point by the fact that the first edition of Jacquin's work (Enum. Pl. Carib. 1760) is very rare and the less rare reprint edition (that is only obscurely so marked) and dated 1762 has been misinterpreted by some botanists to be the original. By this latter and erroneous view Jacquin's name has been alleged to date from 1762 and has been treated as published later than Linnæus' *Achras mammosa* for the same plant. Jacquin's name dating from 1760 is the oldest known for the plant.

The determination of the correct generic name of the Sapote—since it is not an Achras—has been the subject of many opinions. Gaertner (1805–07) placed it in Lucuma, Radlkofer (1882) treated it as a species of Vitellaria, Pierre (1890) put it in Calospermum but it was shown to belong to none of these genera and in 1904 he created for it the new genus Calocarpum. Cook (1913) rejected Calocarpum on the grounds that it was invalidated by the Linnæan generic name of Callicarpa and substituted for it the new name Achradelpha. However, Cook's grounds for rejection are not supported by the International Rules of Botanical Nomenclature and his new name was illegitimate since it was superfluous when published.

Pierre, along with Gaertner and Radlkofer, was unaware of the priority of Jacquin's epithet "Sapota" and took up for the Sapote the name *Calocarpum mammosum*, (L.) Pierre. In 1923 Merrill corrected this situation and made the new combination of *Calocarpum Sapota*.

The valid names and synonymies of the Sapodilla and Sapote respectively are given below.

Achras Zapota, L. Sp. Pl. 1190 (1753).

Achras Sapota, L. Sp. Pl. Ed. 2, 470 (1762).

Achras Zapota β zapotilla, Jacq. Stirp. Amer. 57, t. 41 (1763).

Sapota Achras, Mill. Gard. Dict. Ed. 8, no. 1 (1768).

Achras zapotilla, Nutt. N. Amer. Sylva, iii, 28 (1849).

Sapota zapotilla, Cov. in Contr. U. S. Nat. Herb. ix, 370 (1905).

Manilkara zapotilla, Gilly, in Trop. Woods, lxiii, 20 (1943).

Calocarpum Sapota, (Jacq.) Merr. Enum. Philip. Plants, iii, 284 (1923).

Sideroxylon Sapota, Jacq. Enum. Pl. Carib. 15 (1760).

Achras mammosa, L. Sp. Pl. Ed. 2, 469 (1762).

Sapota mammosa, Mill. Gard. Dict. Ed. 8, no. 2 (1768).

Achras lucuma, Blanco, Fl. Filip. 237 (1837), not Ruiz & Pav.

Lucuma mammosa, Gaertn. Fruct. et Sem. Pl. iii, 129 (1805–07).

Vitellaria mammosa, Radlk. in Sitz. Math.-Phys. Akad. Muench. xii, 325 (1882).

Calospermum mammosum, Pierre, Notes Bot. Sapot. 11 (1890).

Calocarpum mammosum, Pierre, in Urban, Symb. Antill. v, 98 (1904).

Achradelpha mammosa, O. F. Cook, in Journ. Wash. Acad. Sci. iii, 160 (1913).

The Canistel or Egg-Fruit tree

In Hortus Second and most earlier accountings the name of this plant has been given as *Lucuma nervosa*. It is so treated in the text of the revised Manual, but is corrected in a footnote on page 1079 of the index of that work to read *Pouteria campechiana*. The Sapotaceæ family is a difficult group for botanists, taxonomically and nomenclatorially. The early literature concerning many of its elements is abundantly inadequate, too often inaccurate, and has been a source for misunderstandings and misinterpretations. Generic relationships have been studied by several authors in recent decades and all are in agreement that the plants formerly treated as Lucuma are not generically distinct from those of the older genus Pouteria. A detailed accounting of this has been given by Eyma (Rec. Trav. Bot.

Neerland, xxxiii, 159–170, 1936). This treatment was accepted by Baehni (Candollea, vii, 481, 1938 and ix, 149, 1942) in his monographic study of Pouteria, tacitly in substance by Lam (Rec. Trav. Bot. Neerland, xxxvi, 524, 1939), and directly by Cronquist (Lloydia, ix, 257, 1946).

The species *Lucuma nervosa*, A. DC., was considered by Baehni to be only varietally distinct from *Pouteria campechiana*, (HBK.) Baehni, whereas Cronquist noted that the species was a very variable element in its Caribbean range and that *nervosa* was not varietally distinct from it. From this it is clear that the Canistel is a Pouteria and not a Lucuma, but is may be a matter of judgment or opinion whether the plant be treated as *Pouteria campechiana*, (HBK.) Baehni, or *P. campechiana* var. *nervosa*, (A. DC.) Baehni.

OLEACEÆ

Jasminum multiflorum, (Burm. f.) Andr. Bot. Rep. viii, t. 496 (1807).

Nyctanthes multiflora, Burm. f. Fl. Ind. v, t. 3, fig. 1 (1768).

Nyctanthes pubescens, Retz. Obs. v, 9 (1789).

Jasminum pubescens, Willd. Sp. Pl. i, 37 (1797).

The Chinese Jasminum, known in the trade to many as *J. pubescens*, has an older basonym than that of Retzius, a situation pointed out by Kobuski in 1932 (Journ. Arnold Arb. xiii, 172–173), and for this reason the binary name of *multiflorum* is to be adopted for it.

APOCYNACEÆ

Mandevilla laxa, (Ruiz & Pav.) Woodson, in Ann. Mo. Bot. Gard. xix, 68 (1932).

Echites laxa, Ruiz & Pav. Fl. Peru, ii, 19, t. 134 (1799).

Mandevilla suaveolens, Lindl. in Bot. Reg. n. ser. iii, t. 7 (1840).

The Chilean-Jasmine, long cultivated as *Mandevilla sauveolens*, is the only species of this large South American genus known to be in the domestic trade. Woodson (l. c. and op. cit. xx, 696, 1933) based his acceptance of Ruiz and Pavon's basonym on their plate in Flora Peruviana, pointing out features of agreement between the representation of their plant and that of Lindley's. On the basis of priority the name of the vine is *Mandevilla laxa*.

Thevetia peruviana, (Pers.) Schum. in Engler & Prantl, Nat. Pflanzenfam. iv (2), 159 (1895).

Cerbera Thevetia, L. Sp. Pl. Ed. 2, 304 (1762).

Cerbera peruviana, Pers. Syn. Pl. i, 267 (1805).

Thevetia neriifolia, Juss. ex Steud. Nom. Bot. 180 (1821).

Thevetia Thevetia, Millsp. in Field Columb. Mus. Bot. ii, 83 (1900).

Throughout the subtropics and non-arid tropics one of the common cultivated shrubs is the narrow-leaved Yellow Oleander, known to many and abundantly described in the literature as *Thevetia neriifolia*. It is somewhat surprising that the existence of an older name for the plant had been established about fifty years ago, yet had not been taken up by most botanists or horticulturists. In 1895, Schumann, treating the family in Engler and Prantl's Die Natürlichen Pflanzenfamilien, published the fact that *Thevetia neriifolia*, Juss., was the same species as that named *Cerbera peruviana* by Persoon in 1805. The latter binomial, containing the oldest available basonym, necessitated the making of the new name of *Thevetia peruviana* for the plant.

LABIATÆ

Stachys olympica, Poir. in Encyc. Meth. Bot. Suppl. v, 226 (1817). *Stachys lanata*, Jacq. Icon. Pl. Rar. i, 11, (1781), not Crantz (1769).

Woolly Woundwort or Lambs-Ears is a popular garden favorite, long known as *Stachys lanata*. It is offered in the American trade under this name by no less than 115 dealers. However, as pointed out by Hylander (Uppsala Univ. Årsskr. 1945, no. 7, 274), the name is a later homonym, since it was used earlier by Crantz for a different plant. The next earliest available name for the plant is *Stachys olympica*.

Two plants grown as Nepeta Mussinii

The name *Nepeta Mussinii* appears in the listings of almost every dealer of garden perennials and in the catalogues of many seedsmen. It is one of the commonest plants in perennial borders and so-called rock-gardens.

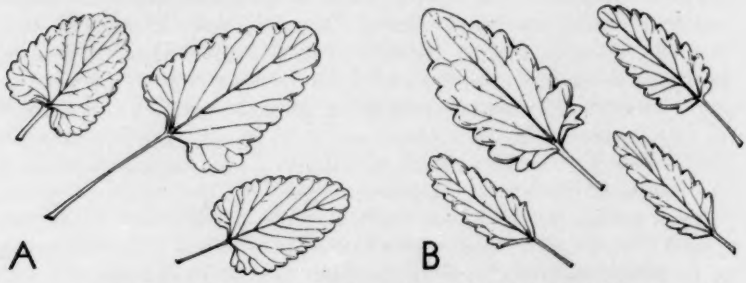
For a considerable time it has been recognized that hybridity is involved in some of the material passing as *Nepeta Mussinii*. Over a century ago Bentham (Labiatarum, 481, 1836) observed it, ascribing the other half of the parentage to *N. grandiflora*. In 1939 Bergmans recognized the hybrid nomenclatorially, naming it *Nepeta Faassenii* (Vaste Planten en Rotsheesters, Ed. 2, 544, 1939). However, it remained for Ernst V. Floto and associates to work out the systematics and cytogenetics of the problem. Floto, unaware of Bergman's publication, gave the hybrid a new name of *N. pseudomussinii*. This latter name was never validly published but nonetheless Floto's work deserves due recognition. Floto, Assistant Curator of the Botanical Garden at Copenhagen, published the results of several years of genetic and taxonomic study, arriving independently at the conclusion that the plant usually grown under this name is a hybrid, having as its alleged parents *N. Mussinii*, Spreng., and *N. nepetella*, L., with morphological characters intermediate between the two and only non-

viable pollen produced. In their more technical paper on the subject (Yearb. Roy. Veterin. Agr. Coll. Copenhagen, 31–39, 1947) Floto and Gudjonsson have described and illustrated each of the alleged parents and the hybrid, including habits, leaf outlines, pollen-grains and chromosomes of the three entities. The pollen-grains of the presumed hybrid are shrivelled and wrinkled, whereas those of the two species are fully turgid and normal. Cytologically the material of *N. Mussinii* (the parent species) has a diploid number of 18, that of *N. nepetella* a diploid of 34, while the hybrid has a diploid number of 26. This latter condition being the sum of the haploid number of the two alleged parent species led the authors to conclude that the usual garden plant grown under the name *N. Mussinii* is an interspecific hybrid. Furthermore, it became evident that the hybrid is sterile and produces no seeds, propagation being by means of cuttings or divisions. Plants grown from seed as *Nepeta Mussinii* have been found to be that species and not the hybrid. No crosses to produce the hybrid were made between the two alleged parents, but "in the Botanical Gardens of Copenhagen, where these two species are grown side by side, several seedling plants, resembling *N. pseudomussinii* (i.e. *N. Faassenii*, Bergmans) to a very high degree and sterile, as is this plant, have been found. Their chromosome number is also 26." The hybrid is more robust, larger and produces more showy inflorescence than does either parent and is separated from true *N. Mussinii* by the following characters:

Leaves oblong-ovate, coarsely serrate, the bases broadly cuneate: stems 10–15 inches high: pollen wrinkled and shrivelled. *N. Faassenii*

Leaves ovate, crenulate, the bases strongly cordate: stems prostrate or procumbent, 8–12 inches high: pollen full and round..... *N. Mussinii*

The name *Nepeta Faassenii* commemorates the contemporary Dutch nurseryman and patron of horticulture, Johannes Hubertus Faassen, pro-



2. LEAVES OF NEPETA. A, *N. Mussinii*. B, the hybrid *N. Faassenii*.

prietor of the firm J. H. Faassen-Hekkens of Tegelen, reputed to be the largest nursery in Holland. For this information and reference to the Bergmans' entry and name I am indebted to W. T. Stearn. The Bergmans' book is already a rarity and to date the only copy of the 1939 edition known to be in this country is in the Bailey Hortorium library. Fig. 2 represents leaves of *N. Mussinii* and of *N. Faassenii*.

SOLANACEÆ

The plant known as *Nierembergia cærulea* is an attractive normally blue-violet-flowered annual or, in favorable climates, perennial. It is believed to have been offered by the American trade first in 1935. Now, fourteen years later, it is listed by more than eighty domestic seedsmen, such has been the growth in its popularity. According to Sealy (Bot. Mag. t. 9473, 1937), it was first introduced to English gardens by Mr. T. Hay of Hyde Park who grew it from seed received from Argentina in December 1932. This accounts for its beginnings as a plant in gardens.

The species, of which the garden element is a variant, was known to botanists over a century ago, for in 1846 John Miers first published a description of it as *Nierembergia hippomanica*. At the same time he recognized also another and closely related element as a distinct species, naming it *N. cærulea*. Sealy recognized the cultivated plant as a species distinct from Miers' *N. hippomanica* and considered it to be Miers' *N. cærulea*. Following Sealy, it was treated as *N. cærulea* in Hortus Second (1941) and many seedsmen have adopted this name in place of *N. hippomanica*, the binomial under which it was introduced.

Nierembergia is a New World genus with most of its forty-odd species indigenous to Argentina. It remained for the Argentinean systematist, Roberto Millan, to prepare and publish a monograph of the genus (Darwiniana, v, 487–547, 1941). Millan recognized Miers' *N. hippomanica* as a polymorphic species represented by thirteen varieties. Both Sealy and Millan agreed that the cultivated plant figured in the Botanical Magazine was not typical *N. hippomanica*. Millan, however, working with a large series of indigenous material and being familiar with the plants in their native habitats, concluded that the cultivated entity of our gardens was only a variant of *N. hippomanica*. Furthermore, he differed with Sealy and concluded that it was not identical with Miers' *N. cærulea* (a plant he also treated as a variant of *N. hippomanica*). He gave the plant of British and American gardens the varietal name of *violacea*. The names and synonymies of Miers' two plants and of our garden representative are as follows:

Nierembergia hippomanica, Miers, in Hook. Lond. Journ. Bot. v, 168 (1846). [Not known to be cultivated domestically.]

Nierembergia hippomanica var. **cærulea,** (Miers) Millan, in Darwiniana, v, 521 (1941). [Not known to be cultivated domestically.]

Nierembergia cærulea, Miers, op. cit. 173, not sensu Sealy (1937).

Nierembergia hippomanica var. **violacea,** Millan, op. cit. 520. This is the plant of our gardens, passing in the trade as *N. hippomanica* or *N. cærulea.*

Nierembergia cærulea, sensu Sealy, in Bot. Mag. t. 9473 (1937), not Miers (1846).

SCROPHULARIACEÆ

Collinsia heterophylla, R. Grah. in Bot. Mag. t. 3695 (1838).

Collinsia bicolor, Benth. in Trans. Hort. Soc. Lond. n. ser. i, 480 (1834), not Raf. (1824).

The illegitimacy of the well-known name *Collinsia bicolor* was pointed out by Munz in 1935 (Man. S. Calif. Bot. 464) when he took up for the plant the name *C. heterophylla. Collinsia bicolor,* Benth., is a later homonym and Graham's name is the next available.

The Yellow Foxglove

There are several yellow-flowered species of Foxglove in our gardens, some biennial, others perennial. This note concerns the usually biennial plant with hairy foliage known as *Digitalis ambigua,* a name which unfortunately is not the oldest and which must be displaced.

One of our oldest sources of legitimate botanical names is the eighth edition of Philip Miller's The Gardener's Dictionary, published in 1768. As its name implies it is a dictionary of garden plants and practices. Plants are accounted by their Latin names, alphabetically by genus, and likewise under each genus by species. Descriptions and ample notes are given and every species is enumerated also by number as assigned in regular sequence within each genus. For the most part Miller employed binomial nomenclature throughout this edition, certainly to the extent required by the Rules. However, in a few cases he did lapse and either a numbered entry was fully described and given no binary name or the specific epithet was of more than one word. This situation was recognized by Miller to be unacceptable and on the last page of the volume is listed a column of properly identified names headed by the following notation:

> "The reader is desired to correct the Mistakes, as also to add to the trivial Titles where they are wanting. The Figures after the generic Titles denote the Species."

In the main text of the work under Digitalis are listed by number the names and descriptions of eight species. Species number 4 has the trivial (binary) name of "(Magno flore)". The editors of Index Kewensis (1893)

transliterated it to read "magniflora," a liberty not allowed by the Rules of Nomenclature. However, on the last page of Miller's work, under the heading quoted above, appears "Digitalis 4, lege (*grandiflora*)." In other words, in the original source of publication, Miller deliberately corrected his illegitimate name of *D. "Magno flore"* to read *"D. grandiflora."* As shown by Hylander (Våra Prydnadsväxters Namn, 141, 1948) and based on studies of Mansfeld (Fedde, Repert. 1941, 1945), the plant Miller described under his number 4 and whose name was corrected by him to *D. grandiflora*, is the species that is well known by botanists and horticulturists by the later name of *D. ambigua*, Murr. For this reason, on the basis of priority, the latter name must be rejected and Miller's earlier name taken up in its place. The essential synonomy for the name follows:

Digitalis grandiflora, Mill. Gard. Dict. Ed. 8, no. 4, et corr. (1768); Lam. Fl. Fr. ii, 332 (1778).

Digitalis ambigua, Murr. Prodr. Stirp. Gotting. 62 (1770).

Digitalis ochroleuca, Jacq. Fl. Austr. i, 36 (1773).

GESNERIACEÆ

Æschynanthes Lobbiana, Hook. in Bot. Mag. t. 4260 (1846).

Trichosporum Lobbianum, Kuntze, Rev. Gen. 477 (1891).

Æschynanthes pulchra, Don. Gen. Syst. Gard. iv, 656 (1837).

Trichosporum pulchrum, Blume, Bijdragen Fl. Ned. Ind. 764 (1826)

By legislation it has been decreed that the generic name Æschynanthes shall be conserved over other names for this genus of tropical plants. This means that Trichosporum is a rejected name and no longer may be used legitimately, and that the valid generic name is Æschynanthes.

Kohleria versus Isoloma

Among the showy Gesneriads grown in the open in the tropics and under glass in temperate regions are the Isolomas, allies of the better-known Gloxinias. In Hortus Second and much of the horticultural literature the four or five cultivated species are accounted for under the generic name Isoloma, given by Joseph Decaisne in 1848. However, as pointed out to me by C. V. Morton of the National Herbarium, the name Isoloma was used six years earlier for a genus of ferns by Sir James Smith and is not available for this gesneriaceous genus. For the plants usually treated as Isolomas, the next available legitimate name of Kohleria, Regel (1848), must be taken up. For this reason,

Isoloma amabile becomes **Kohleria amabilis,** (Planch. & Lind.) Fritsch.

Isoloma bogotense becomes **Kohleria bogotensis,** Fritsch.

Isoloma hirsutum becomes **Kohleria hirsuta,** (HBK.) Regel.

Isoloma hondense becomes **Kohleria hondensis,** (HBK.) Regel.

The nomenclature of Ramonda

Among the choicest alpine plants grown in American rock-gardens are the Ramondas. In botanical and horticultural literature the name is almost universally spelled "Ramondia." Article 70 of the Rules states in part, "The original spelling of a name or epithet must be retained, except in the case of a typographic error, or of a clearly unintentional orthographic error. . ." The genus was established by Richard, and validly published by Persoon (Synop. Pl. i, 216, 1805). Richard gave the genus the name Ramonda in honor of Baron L. F. E. von Ramond de Carbonnières (1753–1827). It is spelled Ramonda in the text of Persoon's work and so again in the index. There is, however, no question of the philological correctness of the spelling Ramondia, but this is not the original spelling of the name and may not be legitimately employed. Note 2 of Article 70 allows correcting such situations in cases of species names but no such authority is given for similar correction of generic names. Edition 4 (1934) of the Kew "Handlist of Rock Garden Plants" employed the correct spelling.

The plant commonly listed in horticultural (and some botanical) literature as *Ramonda pyrenaica* was first described by Linnæus who placed it in the genus Verbascum and named it *V. Myconii.* When Richard established the genus Ramonda he named it arbitrarily *R. pyrenaica,* reputedly basing it on *Verbascum Myconii* which he is alleged to have cited as a synonym. Richard's name of *pyrenaica* is superfluous, a situation recognized by Reichenbach who reinstated Linnæus' epithet by making the combination *Ramonda Myconii.* Richard's publications on the subject have not been seen by me. In the revised Manual the specific epithet is terminated by a single "i" in the belief that the name was of vernacular origin. However, Bergmans (in Vaste Planten en Rotsheesters, Ed. 2, 1939) credited the plant to have been named in honor of Francisco Mico, a Spanish physician of the 16th century who was known also by the Latin name Miconius. For this reason the use of the double "i" in the genetive is here employed.

Ramonda Myconii, (L.) Reichb. Fl. Germ. Exc. 388 (1831).

Verbascum Myconii, L. Sp. Pl. 179 (1753).

Ramonda pyrenaica, Rich. ex Pers. Synop. Pl. i, 216 (1805).

The African-Violets

A year and a half ago B. L. Burtt of Kew published the results of his studies on the species of Saintpaulia (Gard. Chron. cxxii, 23, 1947). He

showed that the plant C. B. Clarke described in 1906 as *S. kewensis* was identical with that named by Wendland thirteen years earlier as *S. ionantha*. Furthermore, he pointed out that much of the material passing as *S. kewensis* was one species and that grown as *S. ionantha* was a second species, not the one known to botanists by that name but actually undescribed. This resulted in abandoning the name *S. kewensis* and taking up for those plants so named the binomial *Saintpaulia ionantha*. By this realignment those plants known as *S. ionantha* represented a species without a name, a situation Burtt corrected by renaming it *Saintpaulia diplotricha*. In addition, he disclosed that a third species is in cultivation in England which he named *S. tongwensis* (Bot. Mag. n. ser. t. 11, 1948), as well as a fourth species not known to be cultivated here.

The three species presumed to be in the American trade may be differentiated by the following characters:

Leaves with dual indumentum of both long and short hairs intermixed: caps. cylindrical, 1–1.3 cm. long..... *S. diplotricha*

Leaves with hairs uniform in length.

The leaves orbicular to broadly elliptic, obtuse: caps. short, subglobose, to 0.8 cm. long..... *S. ionantha*

The leaves elliptic to ovate-elliptic, subacute: caps. cylindrical, 1.5–1.8 cm. long..... *S. tongwensis*

Saintpaulia ionantha, Wendl. in Gartenflora, xlii, 321 (1893).
Saintpaulia kewensis, Clarke, in Dyer, Fl. Trop. Afr. v (2), 501 (1906), not Hort.

Saintpaulia diplotricha, B. L. Burtt, in Gard. Chron. cxxii, 23 (1947).
Saintpaulia ionantha, Hort. not Wendl. (1893).

Saintpaulia tongwensis, B. L. Burtt, l. c. and in Bot. Mag. n. ser. t. 11 (1948).

RUBIACEÆ

Nertera granadensis, (Mutis) Druce, in Rep. Bot. Exchange Club Brit. Isls. 1916, 637 (1917).
Gomozia granadensis, Mutis, in L. f. Suppl. 129 (1781).
Nertera depressa, Banks & Soland. ex Gaertn. Fruct. et Sem. Pl. i, 124, t. 26 (1788).

British botanists of a century or more ago, in absence of established rules of nomenclature, did not insist on retention of the oldest binary epithet on transfer of a species from one genus to another. The name *granadensis,* being the oldest legitimately published epithet, must be reinstated and the plant becomes *Nertera granadensis.* The generic name

Nertera is conserved over the older Gomozia. By some authors the spelling Gomezia is employed (the genus was named for the Portuguese botanist Gomez) but such was not the original spelling of the name.

CAPRIFOLIACEÆ

The Japanese Snowball is a cultivated shrub long ago introduced into this country. In the literature it is treated as a variety of *Viburnum tomentosum*, Thunb. It was pointed out, however, by Rehder in 1945 (Journ. Arnold Arb. xxvi, 77–78) that the name *V. tomentosum* of Thunberg (1784) is a later homonym of *V. tomentosum* of Lamarck (1778), Thunberg's plant not being the same species as that earlier given the same name by Lamarck. Because of this invalidation, Thunberg's name must be rejected and the next oldest legitimate binomial taken up. It so happened that the next available name of *V. plicatum* was applied, not to the typical element of the species but rather to the cultivated sterile variant. This being the case, the Japanese Snowball known only in cultivation and maintained as a clone becomes nomenclatorially the typical element of the species and the plant formerly treated as typical becomes a nomenclatorial variety of it. The nomenclature and essential synonymy of these elements is cited below:

Viburnum plicatum, Thunb. in Trans. Linn. Soc. (Lond.) ii, 332 (1794).

Viburnum plicatum var. *plenum*, Miq. in Ann. Mus. Bot. Lugd.-Bat. ii, 266 (1866).

Viburnum tomentosum var. *sterile*, Koch ex Zabel, in Beissn. Handb. der Laubholz-Ben. 441 (1903).

Viburnum tomentosum var. *plenum*, Rehd. in Bailey, Standard Cyclo. Hort. 3461 (1917).

Viburnum plicatum var. **tomentosum,** (Thunb.) Miq. in Ann. Mus. Bot. Lugd.-Bat. ii, 266 (1866).

Viburnum tomentosum, Thunb. Fl. Japon. 123 (1784), not Lam. (1778).

Viburnum plicatum forma *tomentosum*, Rehd. in Journ. Arnold Arb. xxvi, 77 (1945).

COMPOSITÆ

Lonas annua, (L.) Vines & Druce, Morison. Herb. 71 (1914).

Athanasia annua, L. Sp. Pl. Ed. 2, 1182 (1762).

Lonas inodora, Gaertn. Fruct. et Sem. Pl. ii, 396, t. 165 (1791).

Most trade lists and horticultural works have treated this yellow-flowered annual as *Lonas inodora*. The latter name was made by Joseph Gaertner who based it on Linnæus' *Athanasia annua*. Vines and Druce have re-

instated the epithet *annua* as the oldest available for the plant, the valid name being *Lonas annua*.

Othonna capensis, Bailey, Cyclo. Amer. Hort. 1180 (1901).

Othonna crassifolia, Harvey, in Harvey & Sond. Fl. Cap. iii, 336 (1897), not Mey. ex DC. (1838), nor L. (1753).

Othonnopsis cheirifolia, Bailey, in Gray's Field, For. and Gard. Bot. (1895), not Benth. & Hook. (1873).

This fleshy-leaved pot, basket or window-box subject is sometimes known as "Little Pickles" or "Pickle-Plant." It is a native of South Africa and has small yellow daisy-like flowers. In botanical and most horticultural literature it is known as *Othonna crassifolia*.

The name *Othonna crassifolia* had its beginnings with Linnæus, who published it in 1753 for a plant later placed in the genus Othonnopsis by Jaubert and Spach (1857), Othonnopsis being distinguished from Othonna by its involucral bracts distinct and not at all connate and the style of the disk-florets two-parted. Other species having involucral bracts basally connate and the style deeply two-parted were retained in Linnæan genus Othonna. As pointed out by Bailey in 1901, the Pickle-Plant is not what Linnæus described as *Othonna crassifolia* nor does it belong to the genus Othonnopsis to which the Linnæan plant was transferred. By its characters it is an Othonna, and in the absence of any available name for it Bailey, in 1901, gave it the new name of *Othonna capensis*.

The commonest garden Globe Thistle

One of the most frequent names in the trade for the Globe Thistle is *Echinops Ritro*. A study of an extensive series of herbarium material collected from gardens under this name during a period of nearly fifty years was made by E. Z. Bailey and P. A. Munz. On the basis of comparisons made by Munz of indigenous specimens at the Gray Herbarium in 1945, it was concluded that none of the material in the American trade was identifiable with *E. Ritro*, L., but most closely with *E. exaltatus*, Schrad. A similar situation was found with *Echinops sphærocephalus*, material distributed by the trade and grown under this name being most closely identifiable with the same *E. exaltatus*. It is doubtful whether true *Echinops Ritro* or *E. sphærocephalus* are cultivated to any appreciable extent, if at all, in this country.

The Cape-Marigolds

Three kinds of Cape-Marigold are known in the trade under the names *Dimorphotheca annua*, *D. aurantiaca*, and *D. Ecklonis*. In a recent mono-

graph of the group, Tycho Norlindh of The University, Lund, Sweden, discussed the taxonomy and resultant nomenclature in scholarly detail (Studies in the Calendulaceæ, 1943). The findings of Norlindh, based on extensive field and herbarium studies, have been accepted here and are the basis of this brief discussion.

Dimorphotheca is treated as being represented by three distinct groups of species, each of which is placed in a separate genus: Dimorphotheca, Osteospermum, and Castalis. We are concerned here with the first two. Those species having ray-achenes triangular to subterete in cross-section and the disk-achenes flattened are retained in Dimorphotheca, while plants with achenes all more or less alike (since the disk-flowers rarely produce achenes) and essentially triangular in cross-section are transferred to Osteospermum. On the basis of this distinction the first two species cited above remain in Dimorphotheca while the third is treated as an Osteospermum.

Unfortunately the specific names of the two species retained in Dimorphotheca are also changed for valid reasons. Linnæus in 1753 described *Calendula pluvialis*, introduced from the Cape Colony of South Africa to gardens of Holland as early as 1687. At the same time he described another plant as *C. hybrida*. Each of these later was transferred to Dimorphotheca. In 1832 Christian Friedrich Lessing, one of the great authorities on the Compositæ, described another plant as *Dimorphotheca annua*. In 1865 William Harvey, co-author of the Flora Capensis, treated *D. pluvialis*, *D. hybrida*, and *D. annua* as comprising a single species, and he treated the first two names as synonyms of the latter. From this point onward, botanists and horticulturists have called this white-rayed annual *D. annua*. However, as Norlindh pointed out, the rule of priority requires that *D. pluvialis* be reinstated as the valid name for the plant:

Dimorphotheca pluvialis, (L.) Moench. Meth. Pl. 385 (1794).
Calendula pluvialis, L. Sp. Pl. 921 (1753).
Calenduia hybrida, L. l.c.
Dimorphotheca annua, Less. Synop. Gen. Comp. 257 (1832).
Dimorphotheca hybrida, DC. Prodr. vi, 70 (1837).

The second species of Dimorphotheca is well known in gardens as a vivid orange-rayed annual. Among its earlier appearances in horticultural literature was an account in Gardener's Chronicle (1905) where it was named *Dimorphotheca aurantiaca*. This name has remained with it to the present in garden usage and literature. However, several botanists have recognized that it was very different from the plant originally named *D. aurantiaca* by De Candolle in 1837 [treated by Norlindh as a synonym of

Castalis Tragus, (Ait.) Norl.]. In 1923 Schinz and Thellung, believing this garden plant to be without a valid name and failing to recognize its true affinities, named it *D. pseudo-aurantiaca*. Norlindh concluded that the plant was inseparable from *Dimorphotheca sinuata*, DC., and the latter is now accepted as its valid name:

Dimorphotheca sinuata, DC. Prodr. vi, 72 (1837).

Dimorphotheca calendulacea, Harvey, in Harvey & Sond. Fl. Cap. iii, 423 (1865).

Dimorphotheca aurantiaca, Hort. in Gard. Chron. ser. 3, xxxviii, 127 (1905), and xliii, 127 (1908), not DC. (1837).

Dimorphotheca pseudo-aurantiaca, Schinz & Thell. in Verz. Sämereien und Früchte, Bot. Gart. Univ. Zurich, lxviii, 450 (1923).

The third species of this trio of Cape-Marigolds is a suffrutescent perennial that in favorable environments becomes a distinct shrub. Its ray-flowers are white above and purplish beneath and it is grown as *Dimorphotheca Ecklonis*. However, its achenes are all alike (triangular in cross-section), a character that warrants transfer from Dimorphotheca to Osteospermum. Other characters aid in separating these genera, especially as concerns cultivated representatives: notably, in Dimorphotheca the stigmatic branches of exserted styles of disk-flowers are divergent to recurved, whereas in Osteospermum the gynœcium is sterile and stigmatic branches are very short with commissural faces more or less appressed and not divergent nor reflexed. For these reasons, *D. Ecklonis*, DC., becomes *Osteospermum Ecklonis*, (DC.) Norl.

Ratibida for Lepachys

The Coneflower, a relative of the better-known Rudbeckias, has had several names, generic and specific. In Bailey's Standard Cyclopedia of Horticulture (1915) it was *Lepachys columnaris*. In Hortus Second (1941) it was *L. columnifera*. Now the name almost universally accepted is *Ratibida columnifera*. The nomenclatorial history of the plant and that of the genus to which it belongs goes back well over a century.

The genus Rudbeckia was founded by Linnæus in 1753. Many species were assigned to it during the next sixty years and in 1817 Rafinesque tersely, but with technical sufficiency, segregated from it two genera, Obelisteca and Ratibida. This was in his Flora Ludoviciana, a work presumed by him to concern the plants of Louisiana. However, later botanists overlooked his publication of the genus in this book and instead dated it from his use of the name in the American Monthly Magazine of February 1818. Macbride concluded (Contr. Gray Herb. n. ser. lxv, 45, 1922) that

Rafinesque did not sufficiently describe the genus at this time (1818) and, oblivious of the earlier adequate reference, rejected the name Ratibida in favor of the congeneric Lepachys, a name also first published by Rafinesque in the Journal of Physics in 1819. Since, as Sharp (Ann. Mo. Bot. Gard. xxii, 62–77, 1935) and Fernald (Rhodora, xl, 353–356, 1938) have shown, the name Ratibida has two years priority over Lepachys, the latter must be dropped.

The binary name of the commonly cultivated Coneflower is often given as *columnaris*, based on Sims' *Rudbeckia columnaris*. This publication has generally been credited to 1813 but Fernald has shown 1814 to be the correct date. Because of this correction, the oldest binary name is *columnifera* based on *Rudbeckia columnifera* of Nuttall in 1813. For these reasons, the now generally accepted name of the Coneflower is *Ratibida columnifera*, (Nutt). Woot. & Standl., and its form with purple or purple-marked ray-flowers is treated in the revised Manual as var. *pulcherrima*, (DC.) Woot. & Standl.

FINDING LIST

The older invalid names as appearing in Hortus Second are listed alphabetically in italics followed by the new names as accepted in the revised Manual and the page upon which each is herein treated.

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ARTICLE 2.

NEW COMBINATIONS AND NAMES OF CULTIVATED PLANTS.

By G. H. M. Lawrence

In the course of the preparation of the manuscript of the revised and enlarged Manual of Cultivated Plants, it became necessary to make certain new nomenclatorial combinations or names for a few of the plants treated. These have been made independently by the several collaborators concerned and in each case the author of the particular combination or name has been stated.

† **Pyrrosia Lingua** var. **corymbifera,** Bailey, trans. nov.

Cyclophorus Lingua var. *corymbiferum,* Hort. ex. Benedict, in Bailey, Stand. Cyclo. Hort. ii, 935 (1914).

† **Abies procera,** Rehd., var. **glauca,** Bailey, trans. nov.

Picea nobilis glauca, Ravenscroft, Pinet. Brit. ii, 183 (1863).

Abies nobilis var. *glauca,* Mast. in Journ. Linn. Soc. Lond. Bot. xxii, 189, fig. 18 (1886).

Abies procera forma *glauca,* Rehd. in Rhodora, xlii, 523 (1940).

† **Thuja occidentalis,** L., var. **Mastersii,** Bailey, trans. nov.

Thuja plicata, Endl. Synop. Conif. 51 (1847), pro parte, not Lamb. (1824).

Thuja occidentalis var. *plicata,* Mast. in Gard. Chron. ser. 3, xxi, 258, fig. 86 (1897), not Hoopes (1868).

Thuja occidentalis forma *Mastersii,* Rehd. in Journ. Arnold Arb. xx, 87 (1939).

† **Chamæcyparis obtusa,** Endl., var. **Sanderi,** Bailey, trans. nov.

Juniperus Sanderi, Sander ex Mast. in Gard. Chron. ser. 3, xxv, 287 (1889), *nomen subnudum.*

Cupressus pisifera var. *Sanderi,* Dallimore & Jackson, Handb. Conif. 219 (1923), *nomen tentat.*

Chamæcyparis obtusa forma *Sanderi,* Rehd. in Journ. Arnold Arb. xxviii, 253 (1947).

† **Juniperus chinensis,** L., var. **densa,** Cornman, var. nov.

Type: K. Sawada, July 8, 1943, in herbarium Bailey Hortorium.

Affinis ad var. *pyramidalem* sed forme tenuior et irregularior, obtusis et squamiformibus in multis ramulis et surculis.

Similar to *J. chinensis* var. *pyramidalis,* (Carr.) Rehd., but more slender and irregular in outline, producing numerous branches and twigs with obtusish squamiform leaves. Of this variety, Mr. K. Sawada of the Overlook Nurseries, Crichton, Alabama, writes, "we have specimens of both Greek [i.e. var. *pyramidalis*] and *J. chinensis densa glauca* about ten years old in our nursery grounds. The Greek Juniper is about 7 feet high and about 4–5 feet in diameter, while *densa glauca* of the same age is 8 to 9 feet high and about 3 feet in diameter."

† **Juniperus chinensis,** L., var. **Keteleeri,** (Beissn.) Cornman, trans. nov.

Juniperus chinensis Keteleeri, Hort. ex Beissn. in Mitt. Deutsch. Dendr. Ges. 140 (1910).

Juniperus virginiana var. *Keteleeri,* Hort. ex Rehd. in Bailey Cult. Evergreens, 205 (1923).

?*Juniperus sinensis* var. *Keteleeri,* Venema, in Jahrb. Nederl. Dendr. Ver. xiii, 108–121 (1938), cited reference not seen.

Juniperus sphærica var. *Keteleeri,* van Melle, in Phytologia, ii, 187 (1946).

† **Juniperus chinensis,** L., var. **arbuscula,** (van Melle) Cornman, trans. nov.

Juniperus virginiana Smithi pendula, Hort. ex Beissn. Handb. Nadelh. 125 (1891).

Juniperus virginiana Smithi penduliformis, Sudw. in Bull. U. S. Div. For. xiv, 93 (1897).

Juniperus chinensis (var.) *Smithii,* Hort. ex Slavin, in Chittenden, Rep. Conif. Conf. Roy. Hort. Soc. 103 (1932), not Loud. (1838).

Juniperus media, van Melle, in Phytologia, ii, 189 (1946).

Juniperus media var. *arbuscula,* van Melle, l.c.

† **Juniperus virginiana,** L., var. **Hillii,** (D. Hill) Cornman, stat. nov.

Juniperus virginiana pyramidiformis Hillii, D. Hill, Hill's Evergreens, 17 (1924); Slavin, in Chittenden, Rep. Conif. Conf. Roy. Hort. Soc. 110 (1932), not *J. virginiana* var. *pyramidiformis,* Sudw. (1897).

Juniperus virginiana var. *pyramidiformis*, D. Hill ex Rehd. in Bailey, Cult. Evergreens, 205 (1923), not Sudw. (1897).

Juniperus virginiana Hillii, D. Hill, Nursery Cat. 8 (1944).

† **Aira capillaris,** Host., var. **pulchella,** Bailey, trans. nov.

Aira pulchella, Link, Hort. Berol. i, 130 (1827), not Willd. (1809).

Aspris capillaris, Hitchc., var. *pulchella*, Bailey, Man. Cult. Plants, 115 (1924).

† **Sorghum vulgare,** Pers., var. **caudatus,** Bailey, trans. nov.

Andropogon Sorghum subsp. *sativus* var. *caudatus*, Hack. in DC. Monogr. Phan. vi, 517 (1889).

Sorghum caudatum, Stapf, Fl. Trop. Afr. ix, 131 (1917).

Holcus Sorghum var. *caudatus*, Bailey, Gent. Herb. i, 133 (1923).

† **Lilium maculatum,** Thunb., var. **atrosanguineum,** Bailey, trans. nov.

Lilium Thunbergianum β *atrosanguineum*, Sieb. & Spae, in Mem. Acad. Roy. Belg. xix, 20 (1847).

Lilium elegans var. *atrosanguineum*, Baker & Dyer, in Journ. Linn. Soc. Lond. Bot. xiv, 240 (1875).

Lilium davuricum subsp. *Thunbergianum* forma *atrosanguineum*, Wils. Lilies E. Asia, 55 (1925).

Lilium maculatum forma *atrosanguineum*, Nakai, in Journ. Jap. Bot. xviii, 167 (1942).

† **Ulmus carpinifolia,** Gleditsch, var. **Koopmannii,** Bailey, stat. nov.

Ulmus Koopmannii, Laucke ex Spaeth, Cat. no. 62 [1885–86], 6, 101 (1885).

Ulmus carpinifolia forma *Koopmannii*, Rehd. in Journ. Arnold Arb. xix, 273 (1938).

† **Ulmus carpinifolia,** Gleditsch, var. **sarniensis,** Bailey, trans. nov.

Ulmus campestris β *sarniensis*, Loud. Arb. Frut. Brit. iii, 1376 (1838).

Ulmus stricta var. *sarniensis*, Moss, in Gard. Chron. ser. 3, li, 199 (1912).

Ulmus foliacea var. *Wheatleyi*, Rehd. in Bailey, Stand. Cyclo. Hort. vi, 3412 (1917).

Ulmus carpinifolia forma *sarniensis*, Rehd. in Journ. Arnold Arb. xix, 270–271 (1938).

† **Boussingaultia gracilis,** Miers, var. **pseudo-baselloides,** Bailey, stat. nov.

Boussingaultia baselloides, Hook. in Bot. Mag. t. 3620 (1837), not HBK. (1825).

Boussingaultia gracilis forma *pseudo-baselloides,* Hauman, in Anales Mus. Nac. Hist. Nat. Buenos Aires, xxxiii, 356 (1925).

† **Aconitum Carmichaelii,** Debx. var. **Wilsonii,** Munz, trans. nov.

Aconitum Wilsonii, Stapf ex Veitch, in Journ. Roy. Hort. Soc. xxviii, 58 (1903), *nomen nudum;* Stapf ex Mott. in Rev. Hort. lxxxii, 222, fig. 88 (1910).

Aconitum Fischeri var. *Wilsonii* Davis, in Bailey, Stand. Cyclo. Hort. 210 (1914).

† **Corydalis cava,** L., var. **albiflora,** Bailey, stat. nov.

Corydalis albiflora, Kit. in Schult. Oestreichs Fl. Ed. 2, ii, 305 (1814).

† **Photinia serrulata,** Lindl., var. **aculeata,** Lawrence, var. nov.

Type, E. H. Wilson no. 11061, Seisiu, Province Karenko, Formosa. In herbarum Arnold Arboretum, Jamaica Plain, Mass.

Ab *P. serrulata* differt foliis valde aculeatus et laminarum basis sæpe obtusis vel subtruncatis rariusque cuneatis.

A tree to 20 feet or more high, differing from typical *P. serrulata* in the leaves strongly aculeate and the leaf-bases often obtuse or subtruncate (rarely narrowly cuneate).

The notation by Wilson on the label of the type specimen indicated that the specimen came from a tree 20–25 feet high growing on limestone cliffs. The type is a sterile vegetative branch and it has been suggested that the variant may represent a juvenile foliage form of typical *P. serrulata.* However, James G. Bailie of Fruitland Nurseries, Augusta, Georgia, wrote, in correspondence of August 1943 that the variety grows "from 8 to 15 feet and it flowers, . . . the blooms have a very sickening and bad odor. It also has red berries." E. L. Steele of Glen Saint Mary Nurseries Company, Glen St. Mary, Florida, wrote the same year that a specimen growing there was about 20 feet high, and flowered while continuing to retain the aculeate foliage. There is no known basis for the assumption that the foliage is juvenile in character.

The var. *aculeata* is widely cultivated in the southeastern United States under the name *P. serrulata* and the horticultural name of "*P. aculeata*". The varietal epithet of *aculeata* is not known to have been validly published

and the plant is rarely distinguished nomenclatorially from *P. serrulata*. Fig. 3 shows the foliage of the typical element as contrasted with that of var. *aculeata*.

Specimens of this variety in the herbarium of the Bailey Hortorium are from the two nurseries mentioned above and from Dugdale Nursery, Ashland, Virginia. In addition, there are also two specimens collected by the late Alwin Berger in Schlossgarten, Heidelberg, Germany, in August 1921.

† **Euonymus alatus,** (Thunb.) Sieb., var. **compactus,** Bailey, stat. nov.

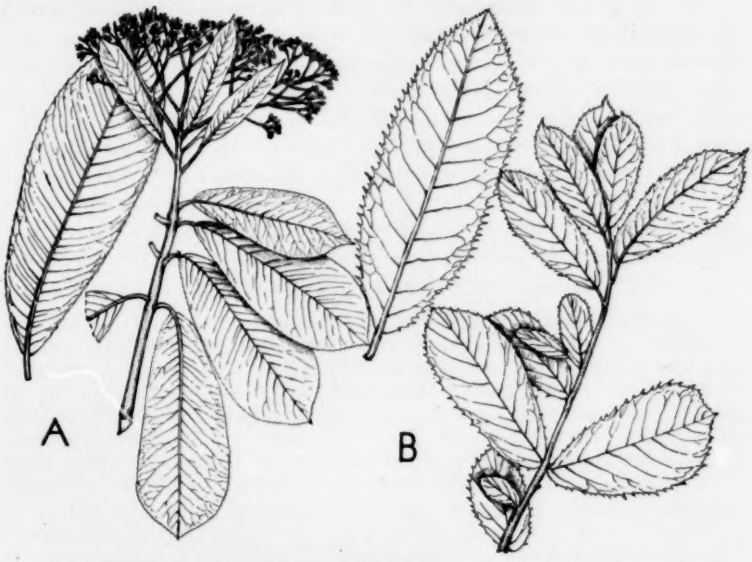
Euonymus alatus compactus, J. W. Adams Nursery Co. Price-list, page 19 (1928); 31, fig. (1931).

Euonymus alatus nanus, Bay State Nursery [Cat.], Trees & Hardy Pl. page 24, 1928.

Euonymus alatus forma *compactus*, Rehd. in Journ. Arnold Arb. xx, 418 (1939).

† **Ilex crenata,** Thunb., var. **Helleri,** Bailey, stat. nov.

Ilex Helleri, Verkades Nurseries Cat. 1936, page 13; Craig, Descr. Price-list, page 31 (1937). [No Latin descr.]



3. Branches of Photinia. A, *P. serrulata*. B, *P. serrulata* var. *aculeata*.

Ilex crenata forma *Helleri*, Rehd. in Journ. Arnold Arb. xx, 417 (1939).

† **Tilia platyphyllos,** Scop., var. **fastigiata,** Bailey, trans. nov.

Tilia platyphyllos var. *pyramidalis*, Rehd. in Möller's Deutsch. Gärtn. Zeit. xiii, 161 (1898), not Simonkai (1888), nor Schneid. (1909).

Tilia grandifolia forma *pyramidalis*, Hort. ex Beissn. in Mitt. Deutsch. Dendr. Ges. no. 1005 (14), 210 (1905), not Kuntze (1867).

Tilia platyphyllos forma *fastigiata*, Rehd. Man. Cult. Trees & Shrubs, Ed. 2, 623 (1940), *nomen*.

† **Cestrum purpureum** var. **Smithii,** Bailey, trans. nov.

Cestrum elegans var. *Smithii*, Bailey, Man. Cult. Plants, 660 (1924).

† **Campanula Elatines,** L., var. **fenestrellata,** Bailey, trans. nov. (combination made in Hortus Second, 1941, but authorities were not cited).

Campanula fenestrellata, Feer, in Journ. Bot. xxviii, 272 (1890).

Campanula garganica, Ten., var. *fenestrellata*, Hayek, Prodr. Fl. Balcan. ii, 533 (1928).

ARTICLE 3.

QUESTIONABLE VALIDITY OF NAMES PUBLISHED IN GILIBERT'S FLORAS OF LITHUANIA.

By Rogers McVaugh

In 1945 the Swedish botanist Dr. Nils Hylander, in the course of a long paper on nomenclature and related subjects (Uppsala Univ. Årsskrift 1945, no. 7, page 16), proposed the summary rejection of all plant names in J. E. Gilibert's Flora Lithuanica Inchoata (1781–1782) and Exercitia Phytologica (1790–1792). As authority for this suggestion Hylander cited Article 68 of the International Rules of Nomenclature, which makes mandatory the rejection of specific epithets "when they were published in works in which the Linnæan system of binary nomenclature for species was not consistently followed." The fate of the plant names in an obscure flora of Lithuania would be of little except theoretical interest were it not for the fact that a decision on the status of Gilibert's works will apparently determine the validity of a well-known name for at least one plant of some economic importance, namely the buckwheat, and also the validity of certain other names which have become standardized through usage but which are relatively non-familiar except to professional botanists. The following account of Gilibert's botanical works has been prepared in the interest of a stabilized nomenclature.

The works whose validity is questioned consist of an unfinished flora of Lithuania, and what are essentially its second (much abridged) edition and its third and completed edition. The complete citations follow:

1. Flora Lithuanica Inchoata, seu enumeratio plantarum quas circa Grodnam collegit et determinavit Joannes Emmanuel Gilibert, 2 volumes, Grodnæ 1781 (et Vilnæ 1782). This work treats 683 species, comprising the two series *Unipetalæ* and *Polypetalæ*. Only about 100 copies were printed (Exercitia Phytologica, Introductio, page lvij), and the work has become excessively rare. As far as I have been able to learn, no complete copy exists in America. A microfilm made from the copy at the British Museum is deposited in the library of the University of Michigan.

2. Plantæ rariores et communes Lithuaniæ observationibus aut descriptionibus illustratæ, pages 1–88 (in Caroli Linnæi Systema Plantarum Europæ, tomus I, Coloniæ-Allobrogum, 1785). This is a much abridged version of the flora of 1781–1782, really a list only, treating 382 species in

condensed form without descriptions. It follows a section entitled Flora Lithuanica Inchoata . . . (title exactly as in edition of 1781–1782) which consists of pages 1–47, the first 12 pages introduction, and pages 13–47 comprising a "Chloris Grodnensis," or the plan according to which the Flora Lithuanica was ultimately to be completed. Both sections dealing with the flora of Lithuania were included as parts of Volume 1 of a four-volume work devoted mainly to an abridged version of the Systema Plantarum of Linnæus.

3. Exercitia Phytologica, quibus omnes plantæ europæeæ . . . describuntur, . . . propria auctoris experientia natis, Lugduni Gallorum, 2 volumes, ?1792. [The two volumes are paged continuously; the title-page of Volume 1 is dated 1792, that of Volume 2 is dated 1790]. This work completes the flora projected in 1781–1782; it includes in addition to *Unipetalæ* and *Polypetalæ* the series *Incompletæ* and *Cryptogamicæ*, comprising a total of 1208 species according to the author's count. The *Unipetalæ* and *Polypetalæ* of this final work were reprinted from the Flora of 1781–1782 with minor changes only, and together may be regarded simply as a slightly revised edition of that Flora. The author made minor changes in the text, and changes in nomenclature, however, in a few cases, so that modern workers should not rely on names published in the Exercitia when the priority of any name is involved. *Lilac suaveolens*, for example (Flora, page 1), becomes *Lilac cordato folio* (Exercitia, page 1).

It is desirable in the first place to summarize the effect which the rejection of these floras would have on modern plant nomenclature; their repudiation hinges upon the interpretation of the word "consistently" in Article 68, and as consistency is perhaps not easy to determine objectively, it would seem to be unwise to advocate over-strict adherence to a technical provision in the Rules if this is to bring about profound changes in already established nomenclature. Such changes, however, would not result from the rejection of Gilibert's works.

Approximately 1200 species were treated by Gilibert in one or more of the versions of his Flora. For 340 species he used binomials proposed by Linnæus (or in a very few cases by Jacquin, Haller, and Schreber). All the remaining names in his floras, or about 850 altogether, were proposed by him as new. About 90 of these new names, or approximately 10.5 percent of them, were polynomials, the specific epithets consisting of two-, three-, or even five-word descriptive phrases. About 667 of the new names were superfluous when published (and so illegitimate under Article 60 (1)) because they were proposed as direct substitutions for Linnæan binomials. After the elimination of polynomials and superfluous names, and the Gilibertian names which were later homonyms, there remains a nucleus of 85 or 90 names which are theoretically available for use if anyone wishes to accept them. As far as I can determine by a cursory survey of current European floras, not one of the 55 or 60 wholly new names in this group is in use at all. The remainder comprise a group of about 30 names which I

have somewhat factitiously styled "anti-tautonyms," which are discussed in the next paragraphs.

Article 68 provides that a specific epithet is illegitimate if it "exactly repeat the generic name with or without the addition of a transcribed symbol." This ruling against tautonyms is an exception to the general rule of priority in nomenclature, preventing the use of combinations like *Fagopyrum Fagopyrum*, (L.) Karst., based on *Polygonum Fagopyrum*, L. In this latter Linnæan name the specific or trivial epithet is not an adjective, but a substantive used by a pre-Linnæan author as the generic name of the plant in question. Linnæus used these old names in this way many times in the Species Plantarum, often for species which were rather doubtfully members of the genera to which he assigned them. To this day the common buckwheat is assigned by many workers to the genus Fagopyrum, but by others to Polygonum as was done by Linnæus. Other Linnæan species which have been similarly transferred to segregate genera by later workers include the following: *Cochlearia Armoracia* (*Armoracia lapathifolia*, Gilib.), *Vaccinium Oxycoccos* (*Oxycoccos tetrapetala*, Gilib.), *Myosotis Lappula* (*Lappula echinata*, Gilib.), *Pinus Larix* (*Larix decidua*, Mill.), *Pyrus Malus* (*Malus sylvestris*, Mill.), *Menyanthes Nymphoides* (*Nymphoides peltatum*, (Gmel.) Britt. & Rendle), *Prunus Padus* (*Padus avium*, Mill.), *Polygonum Persicaria* (*Persicaria mitis*, Gilib.), *Convallaria Polygonatum* (*Polygonatum officinale* All.), *Datura Stramonium* (*Stramonium spinosum*, Lam.), *Ranunculus Ficaria* (*Ficaria verna*, Huds.).

It will be noted that in most if not all cases the name proposed by a post-Linnæan author revives a pre-Linnæan generic name and removes to this genus a species which Linnæus had placed in a more inclusive genus. Gilibert treated about 55 Linnæan names in this manner, not apparently because he objected to tautonyms but because he felt that the genera of Linnæus were too inclusive and because he objected, as will appear later, to the use of non-descriptive epithets. Because of the relatively early dates of Gilibert's floras, many of his specific names in the above category were the first to replace Linnæan names in genera in which strict adherence to priority is now impossible because of the tautonym rule. Apparently fewer than 10 of these "anti-tautonyms" of Gilibert are currently in use. Hegi (Ill. Fl. Mit.-Eur.), for example, accepted *Armoracia lapathifolia*, *Centaurium umbellatum*, *Coronopus procumbens*, *Filipendula hexapetala*, *Lappula echinata*, and *Oxycoccus* [sic] *quadripetala*, but for some reason rejected *Fagopyrum sagittatum* in favor of *F. esculentum*, Moench, which was published two years after Gilibert's name. A few other Gilibertian names, notably *Odontites rubra* and *Hepatica triloba*, appear to be equally acceptable.

It thus appears that general repudiation of the Flora Lithuanica Inchoata and the Exercitia Phytologica as nomenclatural sources would not affect, at the very most, more than a score of names in current use. All the species thus affected, moreover, were supplied with new names either by Moench, in his Methodus of 1794, or by other authors (Allioni, Gaertner, Persoon, Mirbel and others) before 1800 or just after that date. Some of the names proposed by Moench and others were widely accepted in the 19th century, and are more familiar even today than those of Gilibert.

REASONS FOR AND AGAINST THE REJECTION OF GILIBERT'S WORKS

Some recent botanical workers have opposed the general repudiation of Gilibert's floras, chiefly on the ground that many other 18th century authors were guilty of occasional polynomial epithets. It is pointed out that Miller, Lamarck, and even Linnæus himself erred in this respect, and in the interest of consistency it is urged that 20th century botanists not discriminate against Gilibert when his floras contain a mere 90 polynomials out of a total of 1200 species named. It is said further that the provisions of Article 68 should not be invoked except in order to rule against works that employ polynomial epithets almost to the exclusion of binomials, merely employing an occasional one of the latter, as it were by oversight. This argument, it seems to me, is advanced without serious thought of the problem to be solved.

The interpretation of the pertinent part of Article 68, as now stated, hinges upon the word "consistently," and certainly a "consistent" following of the binary system of Linnæus depends on more than some arbitrary percentage of polynomials to be found in a flora. We should all, assuming that we subscribe to the general principle involved, reject a flora in which 90 percent of the names used were polynomials. How many would reject an equally important work in which 50 percent only were polynomials? How many if 25 percent only were polynomials? It seems clear that in this matter "consistency" on the part of an author implies a conscious effort by him to follow or conform to the Linnæan system. It is at once obvious from inspection of Miller's Gardener's Dictionary of 1768 or Linnæus' Species Plantarum that the authors of these volumes intended the plant names to be binomials, and intended the binomials to be plant names, not descriptive phrases. Such polynomials as appear seem for the most part to have been included as remnants from pre-Linnæan nomenclature (e.g. *Campanula Speculum* ♀), or simply through oversight or lack of sufficient proof-reading (e.g. *Apocynum fol. Androsæmi*). The works of Gilibert, on the other hand, suggest in many places that the author departed deliber-

ately from the Linnæan system and the philosophy implied in that system. His own philosophy of nomenclature, set forth in the introduction (pages xlij-xlv) to the Exercitia Phytologica, confirms this speculation:

"Nomina generum Linnaeana quotiescunque sonora facillime retinentur, conservavi: quando talia, aut faciliora apud Hallerum aut Turnefortium vidi, ea absque scrupulo retinui; mea, nomina trivialia Linnaeana feci, quae attributi plantae adhaerentis & sensibilis ideam excitant; arbitraria plurima nihil significantia, desumpta a statione, viribus, &c. repudiavi: sed ubique descriptionibus nostris nomina Linnaei, tum generica, tum trivialia subjeci, eaque sola agnosco tanquam legitima pro citatione plantarum in Pinace universali: aliter enim confusio babylonica de novo nasceretur in arte. Qui autem indigenas tantum plantas alicujus regionis enumerant, nonne possunt trivialia sibi eligere nomina, quae speciem recensendam a congeneribus suis verius designant: sed talia nomina sint relativa Regioni, non absoluta, nec in Pinace generali introducenda; valeant sicut monetae cupreae, quae pretium tantum in patria obtinere possunt. Igitur in nostra enumeratione adjectivum nomini generico adhibui, quod attributum characteristicum cujusque speciei designat. Raro pro triviali appellatione verba duo apposui, plerumque supponitur substantivum in descriptione designatum: v.g. Paniculata significat Plantam floribus paniculatis; Lonicera nigra idem sonat ac Lonicera fructu nigro."

Briefly stated, Gilibert has kept Linnæan generic names if he likes them; if not he has rejected them for those of Haller and Tournefort. He has kept the trivial names of Linnæus only if they are somewhat descriptive: "Many arbitrary names signifying nothing, derived from habitat, virtues, &c., I have repudiated." He has compared the names of Linnæus, both generic and specific, with the plants as he himself has described them, and if they agree to his satisfaction he has admitted these names as eligible for use in a universal system. He queries, however: If anyone is describing the indigenous plants in a given region only, may he not choose his own trivial names, the more readily to separate species from their congerers? He warns, however, that such names are applicable only in their own region, not absolute nor to be introduced into a general system: they are like copper money, which has a value only in its own country. Finally, in his own flora he has used for the trivial names adjectives referring to some attribute of the species. Rarely has he used two words for the epithet; usually, that is, an adjective like *nigra* is used in place of the phrase *fructu nigro*.

In analysing this summary of Gilibert's philosophy, I should say that he failed to follow the "binary system of Linnæus" in two principal respects. In the first place he never accepted the idea that the trivial epithet was a name and nothing more, as it really was in the Linnæan system; to him a one-word epithet was a short but *still necessarily descriptive* attribute of the plant, as well as a name: witness *Anthericum ramosum*, L., which he adopted as his own, and *Anthericum Liliago*, L., which he changed to

Anthericum non ramosum. In the second place, he did not subscribe to the most fundamental tenet of nomenclature, that any species or other group can have but one valid name; the names proposed in his Flora Lithuanica comprised a regional set of names which he understood to be additional to the universal or general names proposed by Linnæus for the same species. The Chloris Grodnensis of 1785, for example, is arranged according to the Linnæan system; here *Andromeda polifolia* appears under this, its Linnæan name. In the same volume, however, in the "Plantæ rariores et communes Lithuaniæ," the same plant appears as *Andromeda Rosmarinifolio*, with the Linnæan name cited as a synonym.

The evidence that Gilibert failed to conform to the "binary system" as such, may be taken not merely from the absolute number of polynomials which he proposed, but also from the character and manner of proposal of many of these. When it suited him, for example, he deliberately changed Linnæan binomials into the polynomial form: *Lythrum Salicaria*, L., became *L. salicis folio*, Gilib. Many of the Gilibertian polynomials, like this one, are easily changed to an adjectival form if one wishes to argue that they were originally published inadvertently (i.e. *salicis folio* instead of *salicifolium*, or *cordato folio* instead of *cordifolia*). Many such epithets, however, were written as one word in the Flora of 1781–1782, and as two words in the Exercitia of 1792 (e.g. *Pulmonaria cordatofolia* and *P. cordato folio*), which would seem to dispel any doubt that the author was aware he was writing "the Pulmonaria with a cordate leaf" and not "the cordate-leaved Pulmonaria." The intention of the author becomes increasingly clear, moreover, as one considers Gilibertian names like *Verbascum parvo flore, Jasione scabiosæ capitulo, Samolus beccabungæ facie, Veronica spicata major, Gnaphalium dioicum mas, Hieracium stoloni angustifolium* and *H. stoloni latifolium, Epilobium hirsutum parvo flore, Serapias tota alba, Festuca fluitans, ramosa*, and *Orchis palmata, rubra; nectarii labio maculato*. The Linnæan *Lycopodium Selago* becomes *Selago abietis facie*, hardly to be considered anything but a deliberate trinomial. Among the fungi, of which Gilibert described a number of entirely new species, one can perceive a purposeful adherence to a polynomial, but still adjectival pattern in the trivial epithets: *Agaricus mollis, albus: A. totus luteus; A. integer, nondum evolutus; A. niger, foetens; A. monstrosus, squamoso-dentatus*. The actual percentage of polynomials in the Flora Lithuanica is relatively unimportant, but it seems perfectly clear that Gilibert's work does not *consistently* follow the binary system of Linnæus, although the names in it are *prevailingly* binomial in form.

At this point it should be said that there is no question of rejecting or discrediting Gilibert's works except on the one count of nomenclature. The author, who wrote a most interesting account of his own life and work in

the introduction of the Exercitia Phytologica, was a critical student and an independent thinker. His descriptions of species, based on his own observations and collections in Lithuania from 1775 until 1783, are ample and carefully worked out. He gives in his floras much information about the flowering season of each species, its habitat and local distribution, economic and medicinal uses. He often adds his own critical notes and comparisons with other species, including those of Linnæus and other authors. He had read widely and had with him in Lithuania the principal systematic works of the time. In short, his own work is a model except that it does not conform to 20th century rules of nomenclature; here Gilibert's very independence of thought seems to have lead him astray.

In conclusion and summation, I should endorse Dr. Hylander's proposal to repudiate, as source of nomenclature, the works of Gilibert discussed above, for the following reasons:

1. The author did not consistently follow the Linnæan system of binary nomenclature, as required by Article 68, but used two or more words in forming the trivial epithets for species, whenever such a course seemed desirable to him. This was in accordance with his belief that plant names intended for use in a regional work should not be arbitrarily derived, but at least in part descriptive.

2. He believed in a dual system of nomenclature, in which any plant might be given one name in a universal system of classification, and a second name in a regional treatment. His Flora being a regional work, he gave the included species new names which were intended to fit into his own new system, not into the Linnæan system.

3. The rejection of all the new plant names published by Gilibert in these works would promote stability in nomenclature, in accordance with Article 4. In the first place there would be automatically eliminated from consideration by botanists the nearly 700 names which were either polynomials or which were superfluous when published. The fact that these names are illegitimate (regardless of the standing of Gilibert's works as a whole) is not always evident from the listings in the Index Kewensis, and because of the extreme rarity of the original volumes it is not often convenient for systematists to determine the validity of individual names in them.

Secondly, Gilibert published a number of species in genera which were nonexistent, from the standpoint of nomenclature, at the time of the appearance of his floras. Some of these genera were pre-Linnæan in origin, but had not been validated subsequent to 1753–1754; other genera are often erroneously regarded as having been first published by Gilibert. The genus Amarella, for example, is usually cited as a Gilibertian genus, but Gilibert published no generic diagnosis, merely describing two species,

Amarella quinquefida and *A. quadrifida* (Fl. Lith. Inch. i, 36). This is contrary to the specific provision of Article 41: "A group is not characterized, and the publication of its name is not validated, merely by mention of the subordinate groups included in it." Another example is the genus Armoracia, usually cited as having been published in 1800 (Gaertn., B. Mey. & Schreber, Fl. Wett. ii, 426); if the genus was not characterized before 1800 then Gilibert's *Armoracia lapathifolia* (Fl. Lith. Inch. ii, 53) is of doubtful validity unless, according to a rather loose interpretation of Article 43, we are to accept his description of *A. lapathifolia* as a "combined generic and specific description," which of course it was not. The use of such names published in non-existent genera is certainly not sound nomenclatural practice.

Finally, out of all the plant names proposed by Gilibert not more than 85 or 90 are available for use. Not more than 10 or 12 are actually in current use, and all these are names for species that were originally described by Linnæus and subsequently re-named by Gilibert in such a way as to avoid the tautonymic repetition of the generic name. All these species were also re-named by Gilibert's contemporaries. Rejection of all Gilibertian names would not entail the creation of any new names, as far as I can determine, and would permit the continued use of certain familiar names like *Fagopyrum esculentum*, Moench, and *Armoracia rusticana*, Gaertn.

General use of Gilibertian names to supersede relatively well-known names like *Fagopyrum esculentum* would be unfortunate at the present time; if Gilibert's works are to be rejected either now or in the future, such rejection would then necessitate return to the names that had previously been replaced. Such a double shift in nomenclature (e.g. from the familiar but antedated *F. esculentum* to *F. sagittatum*, then back to *F. esculentum* after the repudiation of *F. sagittatum* and other Gilibertian names), even for such a relatively unimportant crop plant as the buckwheat, would be a continuous source of irritation and confusion in the literature of plant science. Authors of general and other works which use plant names that may be affected in this way will do well to avoid changes in nomenclature at least until the whole matter of the rejection of Gilibert's works has been passed on by an International Botanical Congress or a competent committee of that body.

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